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# MONEY AND CURRENCY

JOSEPH FRENCH JOHNSON

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# MONEY AND CURRENCY

## IN RELATION TO INDUSTRY, PRICES, AND THE RATE OF INTEREST

BY

JOSEPH FRENCH JOHNSON

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ACCOUNTS, AND FINANCE

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TO

MY FRIEND

HERMANN HENRY KOHLSAAT

A STANCH FRIEND

OF

SOUND MONEY

# PREFACE

There are so many books upon money that the author of a new one needs to offer a word of justification. This book differs from others in several important respects. While it is intended to be a complete exposition of the science of money, aiming its appeal at the understanding rather than at the prejudices of men, its unique characteristics, if it possess any, will be found in the deep practical significance it discovers in the phenomena of price, in its analysis of the demand for money, in its exposition of credit as related to prices and the rate of interest, and in the clearness it gives to the concepts of commodity money, fiat money, and credit money.

This book deals with money as an independent economic entity, and seeks to bring out the fact that "price" in the world of business is a more important word than "value." Economists have too generally assumed that money, being only a medium of exchange, can be left out of calculation in a scientific explanation of the phenomena of production and consumption. They reduce trade to terms of barter, assuming that men work for goods and that they exchange goods for goods. Money cannot thus be set aside. It is itself an economic good, one of the most important in the entire list; and changes in its value exert a powerful influence on the production and distribution of wealth. Indeed, the welfare of society is influenced more by changes in its value than by changes in the value of any other commodity. As is pointed out in Chapter VI, the maladjustment of prices caused by a change of relation between the money demand and the money supply is equivalent to a new alignment of values. As a result, the markets for goods are sometimes depressed or stimulated by forces that greatly puzzle the practical man.

In recent years the theory of money has been beclouded by controversy over what is called the "quantity theory of money." In no scientific treatise has any theory deserving such an appellation been expounded. Certain writers, it is true, in explaining the law of demand and supply as determining the value of money, have failed to give due recognition to the variable nature of demand, and so have seemed to imply that the level of prices — that is, the value of money — depends almost wholly on the quantity of money in existence. In order that there may be no excuse for such a crude inference, the demand for money and the circumstances upon which it depends are in this book subjected to careful analysis. It is shown that the demand or need for money, on account of changes in the use of credit, in money efficiency, and in the total volume of exchanges, is subject to great fluctuations within short periods of time. Any mere "quantity theory of money," therefore, must be as inadequate as would be a "quantity theory of wheat."

To fiat money, a subject which has too generally been slighted, two chapters are given. It is important that the conditions which govern the value of such money be clearly understood. So long as people think that its value is due to the government stamp or to an act of Congress, its advocates in the United States, particularly during periods of industrial and trade depression, will too easily get the public ear. In order to illustrate the principles involved, and to emphasize the elements of peril inherent in the use of fiat money, a chapter is devoted to a discussion of the greenbacks and their value during the period when they were the standard of prices in the United States. The author's conclusion, namely, that the greenbacks during this period were essentially fiat money, getting their value from their utility as money rather than from the government promise they bore, will doubtless arouse some criticism.

The theory of money and credit is developed in the first four chapters. All the remaining chapters are illustrative of the theory. In order that the illustrations may be in harmony with actual conditions, the forces governing the ebb and flow of currency and gold are described in Chapter V. Chapters VI, VII, and VIII show how important is the relation which money and credit, through the medium of price and the rate of interest, bear to industry and the general welfare of society. The use of gold and silver as money is considered in the next four chapters, the issues raised in the long debate over bimetallism and the free coinage of silver being reviewed in order that the principles at stake may be brought to light. Fiat money constitutes the important subject of Chapters XIII and XIV, the author's theory and conclusions being reënforced by facts from the experience of several countries. Credit money, which is not money at all, but a form of credit possessing general acceptability, is treated in Chapter XV. The need for an elastic element in the currency — a need that can be satisfied only by credit money — is here considered. The last two chapters deal with the monetary experience of the United States. Here, as elsewhere, principles are made more conspicuous than the facts of coinage and legislation, it being manifestly more important to know why silver dollars are valuable than to know how many of them have been coined.

The author has written for practical men as well as for students in high schools and colleges. For this reason the technical terminology of modern economics has been avoided. For example, the phrase "marginal utility," which conveys no idea that cannot be set forth in everyday speech, occurs only once or twice and then is not essential to the context. Definite meanings are given to the words "money," "credit money," "currency," "cash," "circulation," etc., and an effort is made to be consistent in their use. The book is entitled *Money and Currency* partly for the purpose of making prominent the fact that these two words, although often used as synonyms, are essentially different in meaning.

While the book is not intended to be historical or descriptive in character, the reader will find in it the salient facts of every important monetary system and most of the data that have served as the basis for argument in recent controversies. Teachers who wish to give their students a wider acquaintance with the history of money and with the details of coinage are recommended to use in connection with this book Mr. Horace White's admirable treatise *Money and Banking*.

I wish to record my indebtedness to Professor Harry R. Seager, who has read the proofs and made many helpful suggestions; to Hon. Frank A. Vanderlip and Hon. Lyman J. Gage, from whom I have obtained much practical information; and to Hon. George E. Roberts, Director of the Mint; Hon. William B. Ridgely, Comptroller of the Currency; and Hon. O. P. Austin, Chief of the Bureau of Statistics, — who have promptly and fully answered many letters of inquiry.

JOSEPH FRENCH JOHNSON

NEW YORK UNIVERSITY
March, 1906

## PREFACE FOR THE NEW EDITION

In this new edition Chapter XVII presents entirely new material, bringing the review of monetary and banking legislation in the United States up to date. A careful analysis is made of the important Federal Reserve Act of December 23, 1913, and the effects of its operation are considered. Important banking and price statistics have been added in the Appendix. I am greatly indebted to my colleagues, Major B. Foster and Chauncey R. Porter, for help in preparation of this edition.

J. F. J.

March, 1921

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# MONEY AND CURRENCY

## CHAPTER I

### THE MEDIUM OF EXCHANGE

1. Money devised to overcome the difficulties of barter. 2. Its evolution was unconscious. 3. Money is the most exchangeable thing in any market. 4. Money was probably first used as a medium of exchange and not as a standard. 5. Modern credit is a promise or contract to deliver money at some future time. 6. Two classes of credit and their relation to prices. 7. Seven different uses or definitions of money. 8. Distinction between money, credit money, currency, and cash. 9. "Price" and "profit" the important words in business.

1. It is commonly assumed that the historian, if he could carry his researches back far enough, would come upon a time when men severally produced all that they consumed, — an age of few wants and no exchanges except by force. To-day it is difficult for us to picture the human race under such primitive conditions. There is hardly a child who is not familiar with the words "buy" and "sell," and in the United States there is probably no family whose members produce all the things they consume. We do not know when the era of exchanging began. We can only conjecture that men gradually discovered by experience that their comfort could be increased by a division of labor which permitted each worker to devote himself to the tasks for which he had most skill.

Money is a tool invented to overcome the difficulties of barter. By analysis of the double difficulty which under a barter economy confronted a man wishing to exchange his surplus product, the utility of money becomes evident. In order that goods might be exchanged for goods, a rare coincidence of wants was essential. A man who had arrows which he wished to exchange for fish was obliged to find a man who had fish which he wished to exchange for arrows. Evidently his problem would be greatly simplified if there were one thing universally and at all times wanted, for then he need only find a man who wanted arrows and take from him that thing in exchange; with that in hand, having found a man who had food to spare, he could obtain it by surrender of the thing which everybody desired.

2. Concerning the origin of money we can only speculate, for we have no record of a time when money was not used. Money, like speech, is doubtless a product of unconscious evolution. We do not know what substance was first used as money, but it seems certain that it must have been in the beginning some object of universal desire. Our knowledge of the tastes of primitive men and women, and of their modern descendants, gives color to the hypothesis that the first money consisted of some personal ornament. In the case of a people living by the sea, for example, rare and beautiful shells, if admired and prized by all, might naturally have begun to serve as a medium of exchange. A man who had spent the day fishing, and had got more fish than he and his family could eat, would be glad to exchange some of his catch for other articles which he desired. If he found a man who wanted fish, and had nothing to give for them except these beautiful shells, he would be tempted to make an exchange even though he himself had no desire for more shells, for he would be better off with a surplus of shells than with a surplus of fish, since the shells were in more general demand. It is easy to see how, under such circumstances, men and women might devote whole days to hunting shells, and at the end of each day exchange part of their stock for food and other articles of desire, the shells thus gradually coming into use as a current or common medium of exchange.

3. In some such fashion, doubtless, the evolution of money began. The concepts expressed by the words "buy" and "sell" are a product of the money economy. The buyer gives up money; the seller receives it. The exchange is one of real values or utilities, but it differs from barter in that only one party, instead of both, as in barter, gets an object that may

directly and immediately satisfy desire. The seller wants the money and accepts it, not because he expects to get pleasure from retaining it, but because he knows that it is the most exchangeable thing in the market, and that with it he can most easily obtain the things which will satisfy his tastes and needs. He wants money merely because of its exchangeability. In our hypothetical illustration shells were used as money because there was a universal want for them. They were the most exchangeable thing in the community, and it was that exchangeability which fitted them to serve as money. Just so soon as men began to exchange their surplus products for shells, not because they wanted them as ornaments, but because they expected to exchange them for other things which they wanted, the shells began to perform a new economic function, and to be in demand on that account. They served as ornaments on account of their beauty; they served as money on account of their immediate and universal exchangeability.

4. Some writers hold that the first service of money was as a standard of values, and not as a medium of exchange. As exchanges increased it is supposed that a need arose for some standard with which all articles could be compared in order that a basis of exchange might easily be reached. It is difficult to see how any article could have served as a standard unless it first served as a medium of exchange. Yet this question we need not stop to consider. At the present time the article which serves as a so-called "standard" or "denominator" of value is the thing itself which possesses universal acceptability, and which serves, either by itself or through its representatives, as a medium of exchange.

5. Money has a fleet-footed auxiliary or representative in credit. Much as the introduction of money simplified the problem of exchange, nevertheless its use in every purchase or sale necessitated the handling and testing of two valuable things, the article sold and the money given in payment. A man going to market had to have money in his pocket. As the wealth of men increased, exchanges grew in magnitude and the carrying and counting of money became burdensome. Then here and

there, in peaceful and law-abiding communities, men who had more or less frequent dealings with one another began to keep accounts and to sell goods without demanding the money in hand, their balances of debt and credit being settled at some convenient or agreed-upon time. Thus began the evolution of credit, and in the process men were doubtless quite unconscious of the almost infinite possibilities of this new system of exchange. It gave to money an unsuspected potency or efficiency. Wherever traders met there appeared credit, armed with power of attorney for money, and fully competent, if its credentials were not doubted, to represent money in any contract of exchange.

In the modern world of business credit plays so prominent a part in all buying and selling that men often think and speak of it as an independent thing or force. The student, however, must never lose sight of the relationship between credit and money. Credit and money are not two different things; credit, indeed, is not a thing at all, but merely the name given to a common and important use of money. A man who buys anything with credit really buys with money, the payment merely being deferred. Leaving barter out of account, we may say that at the present time money figures, either potentially or actually, on one side or the other of every exchange. Credit is merely money's representative or proxy.

Broadly defined, credit is the power to get goods in exchange by giving a promise or contract to deliver an equivalent at some future time. An exchange of goods against a promise to deliver goods is a kind of barter credit, and is not a common transaction. At the present time, in almost all credit exchanges money is the thing promised. Hence credit may be concretely defined as a promise to pay money.

It is evident that credit could not have been much employed by men until after the rights of property were respected and something resembling the modern law of contract was in force. A man will not part with the product of his labor for a mere promise unless he has confidence that the promise will be kept. Credit is, therefore, a development of later times than money; yet the explorer in Babylon has discovered promissory notes which were graven on tablets in the days of Abraham, over two thousand years before the Christian era began. To-day most of the world's exchanges are effected by means of credit, and these promises to pay money are enforced by the law of every civilized land.

6. Credit differs from money in that not all forms of it possess an equal degree of acceptability. A man's check or promissory note will be taken only by people who know him and trust him, whereas every one will accept a bank note. Some forms of credit within a community have almost the same acceptability as money itself. For example, the greenback, which is merely the promise of the United States to pay gold, is a medium of exchange quite as acceptable within the country as gold itself. We divide credit, therefore, into two classes: (1) credit of general acceptability, such as greenbacks and bank notes; (2) credit of limited acceptability, such as bank checks, drafts, and promissory notes. Credit of the first class is popularly called *money*, and is even so named in some scientific treatises; in this book, however, it will be designated as credit money or representative money. The reader should bear in mind that it is not money at all, it is credit.

In many countries certain forms of credit money have been made legal tender, and on that account are prized by men as highly as money itself, for no creditor can refuse to accept them when offered by a debtor. In the United States, for instance, the silver dollar and greenback, although these are credit instruments, being the government's promises to pay gold, are legal tender for the payment of any debt calling for money.

Although the nature of credit is simple, its relation to price is not always perfectly evident. By the word "price" is meant the amount of money for which a thing will exchange. When we say that the price of a bushel of wheat is seventy cents, we mean that a bushel of wheat will exchange for seventy cents. If all exchanges were made for money, credit not being used in any form, the problem of price would be comparatively simple; it would be perfectly clear that the price of wheat measured the value or exchange power of money with respect to wheat. But the use of credit seems to introduce a new element. Some writers even affirm that credit is more important than money in the determination of price, while others go to the other extreme and hold that the use of credit has no effect whatever on price. This is a theoretical question which we cannot discuss until we have gone more deeply into the nature of both money and credit.

7. Money has been the subject of innumerable books and pamphlets, some of them written by the world's greatest thinkers ; nevertheless no subject in political economy is to-day more fruitful of controversy and misunderstanding among economists, and none seems more cloudy and confused in the popular mind. One cause of this misunderstanding is the lack of unanimity in the use of the word "money." In the newspapers, in "the street," and even in scientific treatises on political economy, we find the word used in widely different senses. Definition is essential to clear thinking. Let us consider, therefore, the different meanings which have been given to this word "money."

(*a*) *Scientific use.* Money is that thing which everybody in a community desires in some degree, and is willing to take in payment for goods parted with or for services rendered. This is money in the scientific sense. It is sometimes distinguished as standard or redemption money. In the United States, according to this definition, gold coin alone is money.

(*b*) *Popular use.* Money is popularly used as a synonym of cash or "ready money," being applied indiscriminately to all forms of currency, such as gold coin, bank notes, greenbacks, silver dollars, etc. This is the most common use of the word. In this sense money is made to include not only so-called "standard money," but also all kinds of credit money.

(*c*) *Figurative use.* Money is frequently employed in general literature and in popular speech as the equivalent of riches or wealth ; as when a man is said to be "making money," or to have more money than he can spend.

(*d*) *Financial use.* Money is frequently employed as a synonym of capital or loanable funds ; as "the money market," "time money," "money is tight." In this sense, which is common in financial circles, money means lending power, and is more closely related, as we shall see later, to the savings of a community than to the amount of money or cash in existence.[1]

(*e*) *Legal use.* Among lawyers and in the courts money is anything the law declares a legal tender for the payment of a debt. Thus in the United States, bank notes, silver certificates, and gold certificates, not being legal tender, are not money in the legal sense, but gold coin, silver dollars, and greenbacks are.

(*f*) *Technical use under National Banking Act.* National banks in the United States are required by law to keep on hand a certain amount of "lawful money" as a reserve for the protection of depositors. "Lawful money" includes gold coin and bullion, gold certificates, silver dollars, silver certificates, greenbacks, and Treasury notes, — in fact all kinds of currency except bank notes. It must not be confused with legal tender.

(*g*) *Pseudo-scientific use.* By some writers money is made to include all media of exchange, not only money and credit money, but also checks, bills of exchange, promissory notes, and other forms of credit. Fortunately this vague use of the word is not common.[2]

When we analyze these various uses of the word "money," we find that the essential element in them all is the idea of universal acceptability. A representative of money — that is to say, a promise to deliver money upon demand or at some future time — may possess in ordinary transactions all the acceptability of money itself, and may, therefore, popularly be classed as money; yet it is not money, but credit, and must be sharply distinguished from the thing it represents. In this book the word will always be used in the scientific sense: *Money is that valuable thing or economic good which possesses in any country or community universal acceptability as a medium of exchange or means of payment.*

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[1] Money, which is so commonly understood as the synonym of wealth, is more especially the form in use to denote it when borrowing is spoken of. Borrowing capital is universally spoken of as borrowing money; the loan market is called the *money market;* those who have their capital disposable for investment are called the *moneyed class.* — J. S. MILL, *Political Economy*, Book III, chap. viii, 2.

[2] See Farrer's *Studies in Currency*, pp. 187–189.

8. *Currency* denotes all media of exchange that possess universal acceptability within a country; it embraces, therefore, money itself and credit money, the latter being all those forms of credit which possess the same acceptability or exchangeability as the money which they promise. Thus in the United States gold alone is money; United States notes, gold certificates, silver certificates, bank notes, silver dollars, and subsidiary coins are credit money; all these lumped together constitute the country's supply of currency, or monetary circulation.[1]

*Cash* is practically a synonym of "currency," but is often used with the special connotation of "ready money" as opposed to credit of limited acceptability. Cash includes, therefore, both money and all kinds of credit money. By bankers it is applied also to "exchanges for the clearing house," — that is, all checks or demand drafts on other banks, which are immediately convertible into money or credit money.

For convenience of reference brief definitions of several important terms are here given.

*Utility* is want-satisfying power. Anything that is wanted by men possesses utility in the economic sense. It is not synonymous with usefulness. Many things much desired by men, and hence possessing great utility, would not popularly be called very useful; for instance, diamond scarf pins, cigars, and silk hats.

*Value* means exchange power or purchasing power. Nothing has value unless it has utility and is limited in supply. The value of a thing is shown by the quantities of other things it commands in exchange. The greater the utility of a thing, — in other words, the stronger the desire for it, — the greater its value; the greater its supply, the lower its value.

*Commodity* is the economist's term for "thing." As economists are not interested in things that do not satisfy wants, only such articles as possess either utility or value can properly be called commodities.

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[1] The so-called "supply of money" in the United States, as estimated periodically by the Secretary of the Treasury, includes credit money as well as money, and might better be called the "supply of currency." On July 1, 1923, the supply of "money" was estimated to be $8,603,000,000, but of this amount only about $4,049,000,000, which was the estimated amount of gold in the country available for use as money, could properly be called money.

*Good* is a synonym of "commodity," and in recent economic literature is more often used than "commodity."

A *free good* is one supplied in such abundance that it has no value and commands no price, such as air and water. A free good possesses utility, but not value.

An *economic good* is one of which the supply is less than the demand. It has both utility and value, and includes all articles that are bought and sold in the markets, or for which men are willing to toil.

*Money* is anything which all persons in a community or country are willing to take in final payment for goods or services.

*Price* is the amount of money a given commodity will exchange for. It expresses, therefore, the value of a commodity with respect to money.

*Credit* is the power to obtain goods or services by giving a promise to pay money on demand or at a specified date in the future.

A *credit instrument* is an unconditional promise or contract to pay money on demand or at a specified date in the future.

*Credit money* is any form of credit which possesses within a country or community the same acceptability as money itself. It is often called "representative money," and sometimes "fiduciary money."

*Currency* includes both money and credit money.

*Cash*, like currency, includes both money and credit money, but puts special emphasis on their immediate and general acceptability.

*Monetary circulation* is a phrase commonly used to cover all forms of currency, — that is, money and credit money.

*Legal tender* includes money and all forms of credit money that the law compels creditors to accept.

*Barter* is an exchange of goods without the use either of money or of a promise to pay money. It is often described as an exchange of goods for goods, but this definition lacks precision, for money is itself a good.

9. Since all goods at the present time are made to be sold, and are sold for money in hand or for credit, which calls for money in the future, men easily get into the habit of regarding money as the symbol and representative of universal wealth. Capital goods are always spoken of in terms of money. Wages and salaries and all incomes are paid in money or credit. The average producer of wealth is much less concerned about the quantity of wealth he produces than about the amount of money he gets for it. Profit, which is the incentive to business activity, is the excess of money income over money outgo; like price, it is a money item. Commodities, those economic goods which are the real objects of human desire, apparently occupy a secondary place in the business world, for in the conscious purposes and desires of men money is the primary thing. For this and other reasons, as will be shown in the subsequent chapters, "price" and "profit" are the two most important words in the lexicon of political economy. The main purpose of this book is to show how the prices of commodities and the profits of business (including the wages of workingmen) are dependent upon the laws governing the value of money.

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The following are among the best works on money in the English language: Horace White, *Money and Banking* (Boston, 1902); F. A. Walker, *Money* (New York, 1891); W. S. Jevons, *Money and the Mechanism of Exchange* (New York, 1880); and *Investigations in Currency and Finance* (London, 1884); J. S. Nicholson, *Money and Monetary Problems* (London, 1895); David Kinley, *Money* (New York, 1904); J. Laurence Laughlin, *The Principles of Money* (New York, 1903); C. A. Conant, *Principles of Money and Banking* (New York, 1906).

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# CHAPTER II

## NATURE AND VALUE OF MONEY

10. Exchangeability is the only utility of money. 11. Money is the standard of prices, and is itself without price. 12. Significance of the expression "measure of value," or "standard of value." 13. Money as a standard of deferred payment. 14. Money as a store of value. 15. Under normal conditions money is never idle. 16. The value of money is revealed by general prices. 17. The value of money depends on demand and supply. 18. The demand for money is the need for utility possessing universal exchangeability. 19. The demand for money is limited and definite. Two misconceptions. 20. The demand for money is measured by the amount needed to make exchanges and to serve as a store of value. 21. Credit lessens the demand for money. 22. By supply of money is meant the number of money units available for use as a medium of exchange or store of value. 23. Distinction between the supply of money units and the supply of money utility or of money value. 24. The supply of money value is the product of the demand for money, and is independent of the supply of money. 25. The supply of money utility always tends to equal the demand. 26. The price of a commodity varies because of changes either in the value of the commodity itself or in the value of money. 27. Two kinds of money with which the world has had experience: commodity money and fiat money.

10. Exchangeability is the only utility possessed by money, and it is on account of this utility, and this only, that it is wanted. Money performs a specific service for men, like a hoe or a knife, and is wanted for no other purpose.

Since, however, all forms of wealth can be obtained in exchange for money, or for a promise to pay money, and are usually obtained in that way, men have got into the habit of regarding money as a mysterious thing, — a sort of symbol of values, an omnipotent "third commodity," — the possession of which gives them command over all comforts and luxuries; and they cannot easily think of it as a simple tool which they want for a single service. Yet the only service that money performs and all the advantages that flow from its use are due to its exchangeability. As a carpenter wants saws, hammers, and nails to build a house with, so a man wants money to make exchanges with. Money differs from other tools only in the fact that every man has occasion to use it.

11. Money is the standard of prices. By price is meant the amount of money a thing will exchange for. It is sometimes confused with value, but that word has a much broader significance. By the value of an article is meant the amount of goods in general for which it will exchange,— in other words, its purchasing power, or the exchange relation it bears to all other goods. Value is a general concept; price is concrete. To get an idea of the value of a bushel of wheat, we must know for what quantities of goods in general it can be exchanged, — that is to say, its exchange relation with corn, wool, iron, copper, cloth, and so on through the list of all goods, including money. The price of a commodity gives merely its exchange relation with the single good, money.[1]

Money itself has no price. This is self-evident, for a thing cannot be exchanged for itself. In any country where gold is freely coined into money, gold cannot properly be said to have any price. Gold is practically the money of such a country, for the value of a gold coin cannot differ much from that of the bullion it contains. In the United States it is customary to speak of $20.67 as the price of an ounce of gold, for that is the sum of money into which an ounce of gold is coinable. Price is here incorrectly used. The expression "mint price," which is often employed, is less likely to produce confusion. It is nearer the truth to say that an ounce of pure gold *is* $20.67, for the two things are practically identical except in form, the one being an ounce of gold coined, the other an ounce of gold uncoined. The one cannot in the ordinary sense of the word be the price of the other.[2]

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[1] Many economists have defined price as being the amount of any single good for which another good will exchange. According to this definition, if a bushel of wheat can be exchanged for two of corn, the price of one bushel of wheat would be two of corn. Price is never used in this sense in everyday life.

[2] In the United States statutes, the only place where an authoritative definition of "dollar" can be found, it is defined as a coin containing 25.8 grains of standard gold. Since standard gold is nine tenths fine, the dollar contains 23.22 grains of pure gold. The silver dollar is incorrectly called "a standard dollar" in the law of 1878. Silver is not freely coined, and silver dollars therefore are not money.

### Money is the Standard of Prices

12. The use of money as a medium of exchange enables men to compare the contemporaneous values of goods, and hence it is often called the standard or measure of value. Since all things are sold either for money or its equivalent, — a promise to pay money, — we are able by comparing the prices of different things at any time to compare their values. Thus, if we know that wheat sells at eighty cents a bushel and corn at forty cents, we know that the value of wheat is twice that of corn. Money is a sort of common denominator to which each day the values of all other things are reduced through the medium of price. We compare the wealth of individuals in the same way, involuntarily making an estimate of the sums of money for which their respective properties would sell.

The expression "standard of value" is easily susceptible of an interpretation much too broad and general. The use of money enables us to compare the values of goods only *at a given time.* It is a mistake to assume, as is often done, that money is a permanent, changeless standard adapted to the measurement or comparison of values over long periods of time; this it is not and cannot be so long as its own value is subject to change. The world has never used a money which did not change in value from year to year. The value of gold, for example, was much greater in 1890 than in 1870, and consequently the gold prices of most things were lower. The fall of prices during that period was evidence not of a fall in the values of all commodities, as was frequently assumed, but of a rise in the value of gold. Indeed, a general rise or fall in the values of all commodities is impossible, for if the values of some increase, the values of others must necessarily decline. All prices may rise or fall, for the purchasing power of a money may change; but the purchasing power of all commodities evidently cannot increase at the same time. Simple as this proposition is, it is sometimes overlooked by writers upon money.

Money serves merely as a medium of exchange, and so becomes the standard of prices and convenient measure of contemporaneous values. It is price, the outcome of money's service as a medium of exchange, which enables us at any one time to compare the values of goods. When we speak of money as a standard of value we mean money as a standard of prices, and nothing more. After we have analyzed the value of money and found upon what circumstances it depends, we shall be ready to consider the influence exerted upon business by general price changes or by changes in the value of what is commonly called the standard. Controversy has raged about this subject, and there is nothing in the whole field of finance more important.

13. Since credit instruments of all kinds, including those calling for payment after a term of years, are usually promises to pay money, money is sometimes called a standard of deferred payments. This expression means that men not only use money as a medium of exchange in the present, but also agree to use it in the future. To say that money is a standard of deferred payments is equivalent to saying that long-time credit instruments are usually written in terms of money. This fact sets forth no new service performed by money. Money's one function is to serve as a medium of exchange. Universal exchangeability is the only utility which it possesses. On account of this utility it fixes prices in the present and is employed by men as the price maker in contracts calling for future delivery. The reader must not infer that the use of money in such contracts is not of importance. On the contrary, the fact that the money of to-day is expected to serve as a means of payment or means of exchange ten or twenty years hence is of great importance. We shall consider this use of money in Chapter VIII, — The Importance of Price.

## Money as a Store of Value

14. Since men find it convenient to keep in hand a certain amount of their wealth in the form of money, because of their need for a medium of exchange in the present and in the near future, money is said to serve as a store of value. Writers

upon money usually say that money has four functions ; that it serves as a medium of exchange, as a standard of value, as a standard of deferred payments, and as a store of value. We have already discussed the first three of these functions and have seen that they are all resolvable into the one function of money as a medium of exchange. We shall find upon analysis that the use of money as a store of value also grows out of its use as a medium of exchange.

As a rule, men keep on hand or in store only as much money as they expect to have use for in the immediate future. This amount varies with different men according to their means, the nature of their business, their distance from banks, and their habits in the use of checks. If a man finds he has more money on hand than he has immediate use for, he deposits it in a bank at interest, or he makes some investment with it. He gains nothing by keeping it. To make a profit out of it he must either lend it or convert it into other goods. Money, if lost or stolen, is more difficult to recover than any other property. All dollars are so much alike that identification is practically impossible. For these reasons money does not make so good a store of value as some other kinds of wealth; stocks, bonds, real estate, or even perishable commodities like wheat and cotton serve this purpose much better. Therefore men store in money only that part of their wealth which they expect to have occasion to use as a medium of exchange; the rest they keep in forms that will yield an income or in other ways give them satisfaction.

While money does not at the present time perform any unique service as a store of value, there is no doubt that it did several centuries ago, when the rights of property were less secure. During the Middle Ages men often found it advisable to conceal the amount of their property from the taxgatherer or from their feudal lord, and so converted their surplus wealth into the precious metals, which they buried in the ground. Even to-day, in such countries as India and China, the natives have the habit of hoarding much of their wealth in the form of money, having little knowledge of investment and being fearful of robbery. But in all civilized countries the practice of hoarding money has ceased. The miser who gloats over glittering coin belongs to fable and tradition. The twentieth-century miser gloats over stocks, bonds, mortgages, and warranty deeds.

The fact that banks keep large amounts of money on hand is doubtless responsible for the idea that money still performs a peculiar service as a store of value. This practice on the part of banks, however, forms no exception to the rule. A bank keeps money on hand because it is a dealer in promises to pay money and must always be able to redeem these promises. It is because money is universally acceptable as a means of payment that bank reserves are maintained. If a bank has more money than it can lend, or more than is necessary in the opinion of its managers to meet the demands of its depositors, it is under the same inducement as a private person to get rid of the surplus.

Thus we see that the service of money as a store of value is not one of its unique functions. The farmer has value stored up in a plow, in a threshing machine, in a rake, in hay and grain, because he knows he will have occasion for the use of wealth in these forms. For the same reason the banker stores value in the form of money. The only thing peculiar about money is the fact that every man has occasion for using it, and so every man, if he has any wealth at all, is likely to keep some portion of it stored in the shape of money.

15. Owing to the nature of its single utility, exchangeability, money seeks constant employment, and under normal conditions is never idle. In this respect it is unlike every other good. Idle money is an abnormal thing. Men frequently hold wheat and other goods back from the market in the hope of getting a higher price. But money has no price, and the business man sees no chance of making a profit by holding it. Indeed, even when money is rising in value, that is to say when general prices are falling, a man who has money can do something better than keep it idle in his safe. It would not pay him then to exchange the money for goods, for he would have to sell them at lower prices than he had paid, but he can make a profit by loaning the money or by buying mortgages or bonds,

for later he will get back the principal augmented by interest. Business men, therefore, keep in their possession only that amount of money for which they expect to have immediate use. Banks with their large stores of money constitute no exception. When a bank has in its vaults more money than is needed as a reserve, it looks far and near for good paper in which to invest, and often lowers its rate of discount in order to tempt borrowers. So it happens that under normal conditions all the money in a country is ever busy doing its work as a medium of exchange and as a basis for credit operations. The existence of any large supply not employed in one of these two ways is certain evidence either of industrial and financial derangement or of unscientific and restrictive legislation.

### The Law of Value

16. The value of money is revealed by general prices. It is clear that the value of money with respect to a single commodity, like wheat for example, is shown by the price of wheat. A rise of the price of wheat means that the value of money with respect to wheat has fallen. When wheat is one dollar a bushel the value of money in respect to wheat is just twice what it is when wheat is selling for two dollars a bushel. In the latter case a dollar is worth only half a bushel of wheat. In the same way with respect to all commodities, — the value of money rises as their prices fall, and falls as their prices rise. Thus general prices furnish an index to the value of money; rising prices of goods show that the value of money is falling, and falling prices show that the value of money is rising. In order to give concreteness to the vague expression "general prices," statisticians construct what is commonly known as an index number. In its simplest form an index number is the average of the prices of a group of important commodities; a rise of this average shows a decline in the purchasing power of money with respect to the commodities. The commodities chosen are assumed to be representative of all commodities, and hence it is inferred that the value of money is falling when

the index number is rising, and increasing when the index number is declining. The uses and defects of the index number are discussed in Chapter VI.

17. The value of money depends on the demand for and the supply of money. In order to account for the value of money it is not necessary to invent any new law or theory of value. The value of any article depends upon its utility, i.e. upon the intensity of the human need for it, and upon the limitation of the supply.[1] Money is no exception to the general law of demand and supply. The value of a piece of money, like the value of a bushel of wheat, a diamond, a horse, or a saw, depends upon the intensity of the human want it satisfies, and that varies as the supply of money varies.

If all buying were done with money in hand, no form of credit being used, an increase in the supply of money would tend to cause a proportionate decrease in its value per unit (unless some of the new money were hoarded or in other ways withheld from use), for more money would be offered for goods and sellers would be able to get higher prices. Thus, if no credit were used, an addition of 10 per cent to the money supply of a country would tend to raise prices 10 per cent. We cannot say more than "tend," for we do not know that the demand for money would not also increase the moment prices began to rise. If men, as a result of the rising prices, began to sell more goods, then the demand or need for money would increase, so that the addition to the supply of money would not at once exert a proportionate influence on its value. In a state of society where credit is used, an increase of the money supply, as will be shown later, may cause a rise of prices out of proportion to the increase.

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[1] The refinements of economists with regard to what they term "marginal utility" and the "law of cost" do not affect the truth of the law of demand and supply, with which every business man is familiar. It is not necessary here to analyze in detail the various theories of value. The reader will find, if he study them in the text-books of political economy, that all are reducible to the simple propositions of the familiar law of demand and supply. The concept of marginal utility, for example, brings into clear view the reasons why the demand for an article necessarily varies as the available supply of it is increased or diminished; it gives us what may be called the consumer's view or theory of value. If, on the other hand, we study value from the producer's point of view, we discover that in the case of all goods produced under a condition of free competition the supply will be so regulated that value in the long run will tend to coincide with cost. But neither of these views or theories is antagonistic to what may be called the trader's or observer's theory or conclusion, to wit: that value depends on demand and supply. The marginal-utility theorist emphasizes the effect of changes in the demand; the cost theorist emphasizes the effect of influences acting on the supply. The student of money need not puzzle over the subtleties of these theories. The law of demand and supply explains value phenomena, just as the law of gravitation explains physical phenomena. Both are inductions born of observation, and each suggests very difficult problems, one for the physicist and chemist, the other for the economist and psychologist.

## Nature and Measure of Demand

18. By the demand for money in a country is meant the general need or desire in that country for utility in a form possessing universal and immediate acceptability. This evidently depends upon the volume of business transactions, upon the population of the country, the quantities of goods they produce and exchange, their customs with regard to the use of credit as a medium of exchange, their business organization, their methods of production and exchange, and their habits with regard to the keeping of sums of money on hand. In the same way the demand for wheat is the desire or need for a food utility of the kind possessed by wheat ; and its intensity depends on the number of people, on their wealth or productive capacity, on their use of other articles possessing food utility, and on the amount of wheat they are in the habit of storing for future use. As the supply of wheat increases, other things remaining unchanged, the value of a bushel of wheat declines. In the same way and for the same reason the value of each piece of money falls as the total supply of money increases.

19. The demand for money is limited and definite, like the demand for any other good. The theory of money has been so much clouded by vague conceptions of the nature of demand that some writers reject altogether the theory that the value of money is determined by demand and supply. Other writers, particularly those who have urged a return to the free coinage

of silver, have with much show of authority attributed to demand a meaning that gives to certain gross fallacies the semblance of demonstrated truth. It is very important, therefore, that the reader should get at the outset a clear idea of what is meant by this word "demand."

Two common misconceptions need to be cleared away. The first is the notion that the demand for money consists of all the goods on the market, and therefore is indefinitely great. For the prevalence of this notion John Locke and John Stuart Mill are in some degree responsible. Locke held that money differs from other things in that the "vent" for it is not definite but measureless.[1] Mr. Mill conveys the same idea in the following:

> The demand for money, again, consists of all the goods offered for sale. Every seller of goods is a buyer of money, and the goods he brings with him constitute his demand. The demand for money differs from the demand for other things in this, that it is limited only by the means of the purchaser. The demand for other things is for so much and no more, but there is always a demand for as much money as can be got. — *Political Economy*, Book III, chap. viii, 2.

Mr. Mill here had in mind the possible or potential demand for money, not the real or effective demand. His statement is true only in a general sense. Goods on the market are there to be sold, and their owners want to sell them for money, but no need for money arises until buyers have been found. The retailer with a stock of goods worth $10,000 may give rise to a demand for no more money than one whose stock is worth only $1000, for he may sell no more goods. The demand for money is not fixed by the quantity of goods offered but by the quantity sold.

Another misconception of demand is born of the popular confusion of money with wealth in general. On account of its constant and universal use and its easy convertibility into other forms of wealth, money possesses a peculiar fascination for men. The poor man thinks of his needs in terms of dollars and cents, and is sure he wants all the money he can get. The statement that his economic need or real demand for money is no greater than his need for the tools which he uses in his daily toil would be to him at first incomprehensible. Very few men have all the good things of earth they want, and these things can be bought with money. They think it is money they need, whereas what they really want is better houses, better clothing, more comforts, and more luxuries. Writers upon money are not without responsibility for the vagueness of popular ideas on this subject. For example, Professor Smart speaks of money as "the one thing of which nobody ever has enough, for in promise and potency it is almost everything else."[1] The thing of which nobody ever has enough is wealth in general. Money, instead of being the one thing of which we never have enough, is the one form of wealth which lies heaviest on our hands and which we are the most anxious to be rid of. Indeed, the only intelligent thing to do with money is to part with it. Any other use of it is wasteful. There are, of course, foolish ways of getting rid of it, and wise ways; but to be got rid of by exchange — that is the mission of money. For a man to have money about him which he does not use or expect to use, is as uneconomic and extravagant as it would be for a man who is afraid of powder to own a gun.

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[1] See Locke's essay entitled "Some Considerations of the Consequences of the Lowering of Interest, etc."

The mere desire for money, or for wealth in general, is no part of that demand for money which is responsible for its value. No matter how strong may be the desire for money, if the desire leads to no exchange, and so does not call for the use of money, it is no part of the economic demand for it. The demand for money comes only from those persons who have wealth or services which they wish to exchange. The man who has no horse has no need for a harness; in the same way the man who has no wealth or services to sell, has no economic need of money and plays no part whatever in the demand for it.

The notion that money is the essence of all wealth, and that an excessive supply is inconceivable, was exemplified in the sixteenth and seventeenth centuries by the struggle made by the nations of Europe to get possession of the precious metals. It was then commonly believed that a country's wealth was measured by the amount of money it possessed. Hence nations deliberately sought to adopt policies of trade which would increase their store of the precious metals. They imposed heavy fines upon the export of gold and silver, and sought by means of protective tariffs to discourage the importation of commodities in order that a "favorable balance" of trade might bring the precious metals to their treasuries. This is now known as the mercantilist policy, and is recognized, as between nations, to have been founded upon a fallacy. Gold and silver are no longer regarded as the main or most useful forms of wealth, nor does any nation consciously adopt any policy intended to bring them into its possession. A country needs a certain quantity of the precious metals for use in the arts and for use as money. Any additional quantity, if it is not hoarded as an idle and useless surplus, will merely lift the prices of goods to an abnormal level.

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[1] *Studies in Economics*, p. 145.

20. The demand for money is measured by the amount needed to make exchanges and to serve as a store of value for use in future exchanges. We cannot measure the intensity of any human want subjectively. We can estimate its strength only by the activities to which it leads. We do not know how hungry a man is until we know how much he can eat. We measure a horse's thirst by the amount of water he drinks. In the same way we can measure the demand or need for money only by the amount that men get possession of for the accomplishment of their ends. If we could ascertain how many exchanges are being made for money in a given community on a given day, and the total value of goods and services so exchanged, we should have the total volume of money exchanges and should know the demand for money for use as a medium of exchange. If, furthermore, we could ascertain how much money the people of that community thought necessary to keep on hand for use in future exchanges, how much storekeepers carried in their tills in order that they might be able to make change, how much the banks kept as a basis for their credit,

we should know all we could about the demand for money in that community as a store of value. By combining the demand for money as a medium of exchange and the demand for it as store of immediately exchangeable value we should have the total demand for money in that community.

The demand for money or for any article can be measured quantitatively only by an analysis of the existing supply. For example, all the wheat in the United States falls into one of the following classes: (1) wheat that is being exchanged, (2) wheat held by millers for conversion into flour, (3) wheat held by farmers and speculators for higher prices. Those holding wheat of the third class do not expect to get any satisfaction out of its utility as food, nor to add to its utility and value by converting it into flour. If their stock of wheat were destroyed, they would not replace it, for they have no need for the utility which it represents. Hence in measuring the demand for wheat utility we must ignore this part of the existing supply. The demand for wheat utility is revealed on any day by the quantity being sold plus that which is stored for future use. If the wheat falling under these two heads were in any way destroyed, an immediate demand would arise for wheat to take its place. The stock of wheat being held back from the market does not represent any real or effective demand for wheat; it stands only for a potential or possible future demand. To distinguish it from the supply of wheat on the market at any given time, economists sometimes call it the potential supply or "stock" of wheat. It indirectly affects the value of wheat if its existence is generally known, for according to its quantity it influences the effective demand, buyers always taking it into account in their estimates of the value of wheat.

Since money seeks constant employment, no man under normal conditions being able to make money by keeping it, there is evidently no stock of money corresponding to the wheat classed under the third head in the foregoing paragraph. The supply of money in any country falls into one or the other of the first two classes: (1) that which is being exchanged; (2) that which is held because the owners expect to have use for it in the near future. In other words, the stock of money in any country under normal conditions always represents and measures the real need or demand for money utility. All the money is always at work.

Of money, therefore, we can say what can be said of no other good, namely that the supply under normal conditions always equals and measures the demand. This statement is true only under normal conditions. During a panic, when personal credit loses much of its acceptability as a medium of exchange, the need for money increases with great rapidity and the normal adjustment between demand and supply is disturbed, to the great inconvenience and loss of business men. So likewise after a panic, on account of the prevailing business stagnation, the need for money dwindles and bankers find themselves burdened with a stock for which the community has no use. But this lack of adjustment between the demand and supply is never long-lived. The money famine of the panic period usually results in an importation of gold, — if that metal is being used as money, — while the plethora of money after a panic generally ends in an exportation of gold, the gold movements in both cases being brought about automatically by forces described in detail in Chapter IV.

21. The use of credit as a medium of exchange tends to lessen the demand or need for money, and hence to lessen its value, so that the level of prices is higher than it would be if credit were not used. As explained in Chapter I, credit is a promise to pay money and serves as a medium of exchange. Since many promises to pay money are canceled through the agency of banks without the use of money, it is evident that the demand or need for money must tend to decrease when the use of credit is increasing. In a country whose business is giving rise to a certain volume of exchanges the demand for money itself varies in proportion to the use of credit, being large if credit is little employed and small if credit is much employed. This relation of credit to the value of money, and hence to prices, is very important and will be treated at length in subsequent chapters.

Credit money, like every other form of credit, by economizing the use of money, lessens the demand for it and so lessens its value. Credit money is in no sense the unit of prices or the so-called standard of value. Its relation to prices is like that of any other form of credit, an indirect one; it affects prices only through its influence upon the demand for money. For illustration, let us suppose that Congress should decide to retire and cancel the $346,000,000 in greenbacks now outstanding, and that no provision were made to fill their place with any other kind of credit money. The disappearance of the greenbacks would break the adjustment between the money demand and the money supply, and each piece of money left in circulation would be subject to a greater demand than before, its value rising in consequence. The rise in the value of gold in the United States, the visible expression of which would be a fall of prices, would attract gold to this country from other parts of the world until the vacant place in our currency was entirely filled with gold. Such a large draft upon the world's stock of gold would undoubtedly raise its value and so tend to cause a decline of prices in all countries using gold as money.[1]

This illustration, the reader must bear in mind, is purely hypothetical, and ignores several possible if not probable effects of a sudden retirement of the greenbacks. In the business world, which is the economist's only laboratory, interfering forces cannot be eliminated. The economist, therefore, can predict tendencies only, not precise results. However, if greenbacks were to be called in and canceled, as we have supposed, it would be safe to predict that prices would fall and that gold would be imported into the United States; but the extent of the fall of prices and of the importation of gold could not be foretold, for the readjustment of the world's business to a new level of prices could not be accomplished without a disturbance of credit and of business conditions that would seriously affect the demand for money in every country.

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[1] It should be noticed that the quantity of money (i.e. the supply of money units) needed in the United States would decline in proportion as the value of gold rose. Thus, if the value of gold rose 10 per cent, the normal level of prices would be some 9 per cent lower than before the greenbacks were retired, each dollar would exchange for 10 per cent more goods than before, and hence the country, if we suppose that meantime its business had not grown, would need 9 per cent less money. Under this supposition, the supply of money in the United States amounting to $2,500,000,000, the place left by the greenbacks would be adequately filled when $121,000,000 of new gold had found its way into the money supply.

## Supply of Money

22. By supply of money is meant the number or quantity of money units [1] available for use as a medium of exchange. As has been pointed out, under normal conditions the supply of money includes all the money in a country. In the case of any other good the supply may be divided into effective supply, or that portion which is wanted on account of its utility, and potential supply, or that portion which men are holding for a better market price. But under normal conditions there is no potential supply of money, for no profit can be made by holding it. The money supply of a country then includes (1) all the money which is actually engaged in making exchanges, and (2) the money held in the pockets of the people, in the tills of shopkeepers, and in the reserves of banks. The money in the second class is commonly said to be serving as a store of value, yet all of it is held in response to a real demand for it for service as a medium of exchange. Any pieces of money that have been hoarded or converted into ornaments cannot properly be considered part of the effective money supply; such pieces must be classed as in an abnormal potential supply.

23. The supply of money is something different from the supply of money utility or money value. This distinction it is important to notice for the reason that money's power of service increases as its value increases. The reader will understand the distinction if he thinks of the effect which a great fall

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[1] A money unit — often called the monetary unit — is a definite amount of money which law or custom makes the basis for calculation or measurement. In the United States the dollar is the money unit, in England the sovereign, in Germany the mark, in France the franc. All commodities have their units of measurement, as bushels of wheat, cords of wood, bales of cotton.

of prices would have upon the purchasing power of the money at his command. A fall in prices of 50 per cent, if it were uniform in its application to all goods, would evidently enable him to buy with his money just twice the amount which he could buy before the fall took place, fifty cents buying as much after the fall as a dollar had bought before. If the money supply had not been reduced, its total value or purchasing power would have been doubled. Thus, without any change whatever in the supply of money units, a change of the greatest importance may take place in the supply of money value.

In the case of no other good is this distinction of any consequence, for the utility of no other good increases in the same proportion as its value. Wheat, for example, derives its value from its food utility, and this is not augmented by an increase in the value of wheat. A bushel of wheat will feed no more people when worth two dollars than when worth one dollar. But the efficiency of money, that is to say its power to satisfy the human want for which it exists, varies directly with its value. The more money is worth, the more goods it will exchange. Changes in the value of money, therefore, are of greater consequence than changes in the value of anything else, for such changes have an immediate effect upon the usefulness of a given supply of money.

This brief analysis of the supply of money value shows how futile it is to attempt to regulate it by legislation, or to interfere with the necessary relation existing between it and the supply of money units. The grocer who puts sand in his sugar, or the confectioner who puts terra alba into his sweets, is publicly condemned for the use of adulterants. In each of these cases the apparent supply of the commodity is increased without any increase of its utility. Arbitrary additions to the supply of money units have the same adulterant effect; they enlarge the apparent supply of money without any increase of its real utility or effectiveness.

24. The supply of money value (i.e. of utility possessing universal exchangeability) is the product of the demand for money, is independent of the number of money units, and tends

always to equal the demand. Let us suppose an isolated community to contain a population of one hundred thousand people, who are making and exchanging goods very much as are the people of the United States at the present time. Their need for money will be a need for a certain quantity of exchange power or value, and will be determined by the volume of exchanges they wish to make with money. All their other economic needs will be for definite quantities of goods, and not merely for value embodied in goods. A family that requires a barrel of flour every month will not find that its need has changed merely because the value of a barrel of flour has changed. In the case of flour it is a certain amount of food that is wanted and not a certain amount of value in the shape of food. In the case of money, however, it is a certain amount of readily exchangeable utility that is wanted rather than a certain number of coins or bills.

The desired amount of money utility will always be in existence, for it is created by the need for it. If the supply of money is $1,000,000, the need for value in a form immediately exchangeable will give to that million dollars a purchasing power sufficient to render it capable of transacting all the business of the community. As the population increases, the community may be obliged to send out to get more flour or meat, but it will be under no such necessity of increasing its supply of money, for the value of the existing supply will increase as the demand increases; in other words, the purchasing power of each money unit will increase and the prices of goods fall.

25. Thus the supply of money varies in value automatically, always tending to equal the demand. Money is unique in this power to adjust its utility to the demand. The dollar is the only tool used which is capable of performing all the work asked of it. No limit can be put upon its exchangeability, and hence the service for which each dollar is potentially competent is indefinitely great.

To return to our isolated community of one hundred thousand people, let us suppose that it doubles in population and in the production of wealth, and that the use of credit does not change.

Then its need for money has doubled. Although it will now need twice as much money value as formerly, an increase of the money supply will not be necessary, for the need will be met by an increase in the value of each piece of money. In other words, prices will fall 50 per cent, and things which formerly sold at one dollar will sell at fifty cents.

### Relation of Prices to Money

26. Money may be called the unit of price but not the unit of value. The latter expression is in common use, for men, as has been said, are accustomed to think of money as a symbol of all values, and so they instinctively think of the price of a good as revealing its value. But price and value are very different concepts, and changes in value are not necessarily reflected by changes in price. The price of any article depends upon two circumstances, its own value and the value of money. Any cause tending to lower the value of potatoes, for example, tends to lower their price, for men will then give less money in exchange for them ; in precisely the same way any cause tending

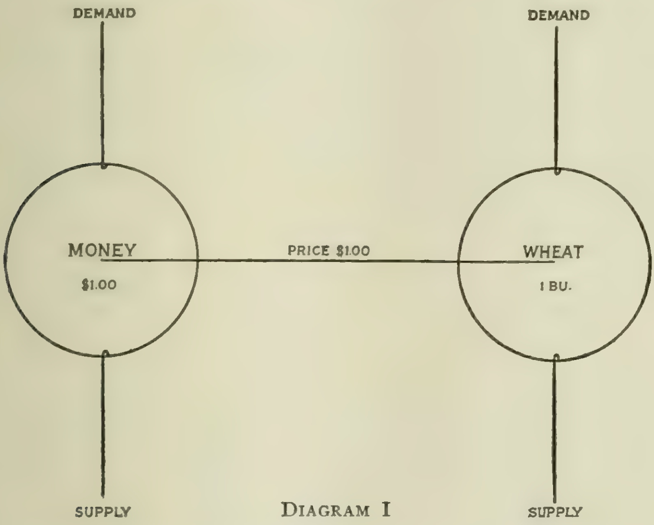

Diagram I

to increase the value or general purchasing power of money will tend to lower the price of potatoes and of other commodities as well, for as the dollar increases in value men will demand larger quantities of goods in exchange for it.

Diagram I (on page 29) may help the reader. Let the circle on the right represent a bushel of wheat, and the circle on the left the monetary unit of a country, say one dollar. The exchange relation between the two is the price of wheat, as indicated by the horizontal line connecting the two, the price being assumed at one dollar.

The value of wheat depends upon the demand for it and the supply. The value of money depends upon the demand for and supply of money. Let us suppose now that the supply of wheat is increased without any change in the demand, and that the value of wheat falls. Then if the demand and supply conditions determining the value of money have not changed, we shall have a fall in the price of wheat, as illustrated in Diagram II, in which the dotted lines show the new position taken by wheat in relation to money.

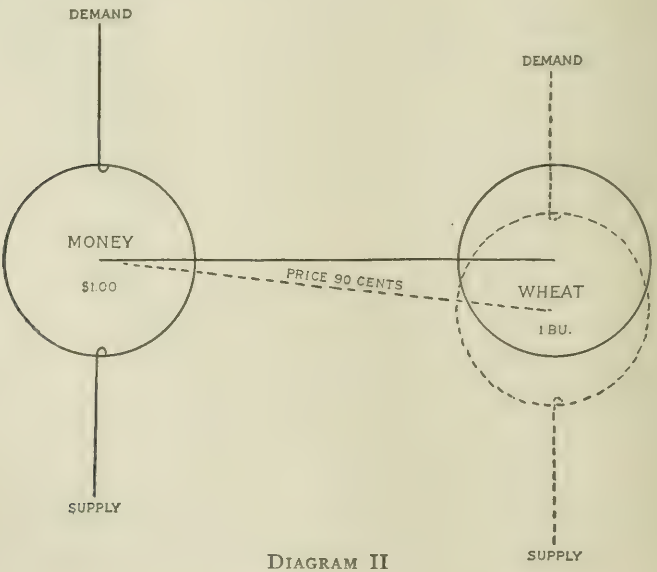

DIAGRAM II

Next let us suppose that the conditions governing the general value of wheat remain unchanged, but that the value of money has been raised by an increasing demand. Here again we get a fall in the price of wheat, shown by the dotted lines in Diagram III.

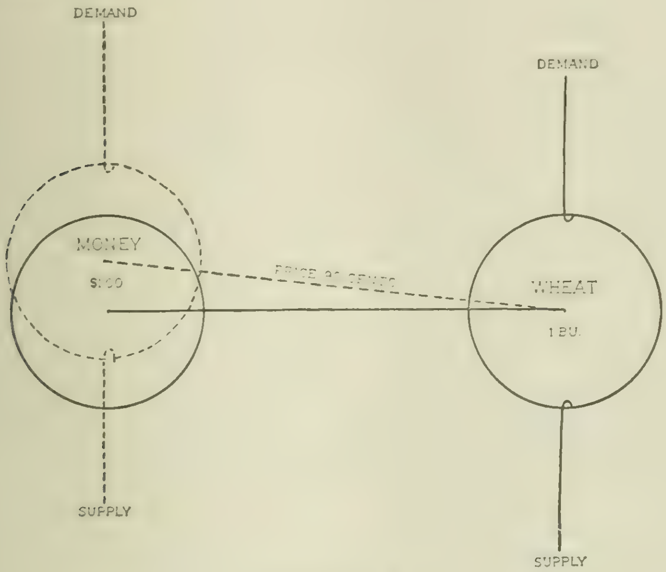

Diagram III

The reader will see, after very little analysis, that the price of wheat depends on four very different circumstances: that it will tend to rise (1) when the demand for wheat increases; (2) when the supply of wheat decreases; (3) when the supply of money increases; (4) when the demand for money decreases; and that it will tend to fall when opposite changes take place.

That the prices of goods depend quite as much upon the value of money as upon the value of the goods themselves is a truth that the reader must clearly grasp. It may be a little puzzling at first, for it is natural to think of money as a fixed and stable thing, with respect to which other things fluctuate. To many men the idea that money changes in value is as novel when first presented as the notion that the ocean changes its level. The reason for this misapprehension with regard to the value of money lies in the fact that men think of price as being identical with value, and since the "price" of gold (and of silver in a country where it is freely coined into money) never changes, it is assumed that the value of gold is unchanging. The common belief in the stability of money is analogous to the illusion existing among primitive peoples with regard to the solar system. They think the earth is stationary. It is their viewpoint, and all changes on the screen of the firmament seem to them to reflect changes in the heavens, not in the position of the earth. The analogy, like all analogies, is imperfect, but it is suggestive. The fact that changes in price reflect changes in the value of money as well as changes in the values of goods is very important.

27. The world has had experience with two kinds of money: (1) commodity money, or money made out of material of which the free use is permitted as money, so that its value is the product of two sets of utilities, namely its utility as money and its utilities as an ordinary commodity; (2) fiat money, or money the value of which has no relation to the value of the material out of which it is made, being the product solely of its utility as money.

Gold and silver have for many centuries been used as commodity money. The free coinage of these metals is essential to their use as commodity money. Coins made of gold or silver, if their free coinage is not permitted, are either credit money or fiat money. By free coinage of a metal is meant that any person has the right to take it to the government mint and have it converted into standard coin. When the free coinage of a metal is permitted, the value of the metal practically determines the value of money.[1]

The value of fiat money depends solely upon the demand for and supply of money. By some writers it has been called "pure money" or "ideal money." Others seem so impressed by the risks connected with the use of fiat money that they deny even its theoretical possibility, insisting that a substance used as money must have value before it can be so used, and that it gets no added value from such use. Fiat money is more than a theoretical possibility and it is of vital importance that its nature be understood. It is the subject of Chapters XIII and XIV.

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[1] The use of the precious metals as money is discussed in Chapter IX.

## LITERATURE

MILL, *Political Economy*, Book III, chaps. vii, viii, and xv; WHITE, *Money and Banking*, Book I, chap. i; WALKER, *Money*, Part I, chaps. i–ii; KINLEY, *Money*, chaps. i, ii, v, and viii; LAUGHLIN, *Principles of Money*, chaps. i–ii; WILLIAM SMART, *Studies in Economics*, chap. v; A. DEL MAR, *History of Monetary Systems*, also *Money and Civilization*. KARL MENGER'S article on "The Origin of Money," in the London *Economic Journal* (June, 1892), is keen and profound. W. W. CARLILE'S *The Evolution of Modern Money* (London, 1901) is well written and learned, but not always clear. W. A. SHAW'S *History of the Currency* is a convenient compilation, but is confused in its inferences and deductions. The same may also be said of J. SCHOENHOF'S *History of Money and Prices* (New York, 1896). H. D. MACLEOD'S works on money and credit, although suggestive and informing, are marred by a too confident dogmatism.

Views not in accord with those presented in this book will be found in LAUGHLIN'S *Principles of Money*, SCOTT'S *Money and Banking*, KINLEY'S *Money*, FARRER'S *Studies in Currency*, and CARLILE'S *Evolution of Modern Money*. Professor LAUGHLIN'S *Principles* is a valuable reference book on account of its bibliographies and historical data.

The reader will find good expositions of the theory of value in the works on economics by MILL, MARSHALL, SEAGER, FETTER, GIDE, PIERSON, and SELIGMAN.

# CHAPTER III

## NATURE AND USES OF CREDIT

28. Various definitions of credit. To-day a credit instrument is a promise to pay money. 29. The important service of credit as an instrument for the transfer of capital. 30. Credit does not create, yet it leads to increased production. 31. The basis of credit is confidence. 32. To what extent is credit "based upon goods"? 33. Credit of unlimited acceptability, — popularly called money. Bank notes and government notes. 34. Credit of limited acceptability, — the promissory note, checks, bills of exchange, book accounts. 35. Banks are dealers in credit. 36. Brief analysis of a bank's operations, — checks, drafts, "deposit currency," clearing house. 37. Book accounts and bills of exchange. 38. Large use of credit of limited acceptability. 39. Money as a basis of credit and as a hand-to-hand medium of exchange. 40. Forms of credit that do not serve as a medium of exchange. 41. Credit, on account of its swiftness and convenience, is employed by men to the fullest possible extent. 42. Elasticity the essential characteristic of a good credit system. In the United States this exists only in the case of credit of limited acceptability

28. The word "credit" is employed in different ways in everyday life and in the business world. No single definition will cover its full significance. A man is said to have credit, for instance, if he is known to be a man of integrity who always pays his debts when due. Here credit means the power to borrow or to get goods or services by promising to pay in the future. To the bookkeeper the word "credit" means the opposite of "debt," namely that something is owed to a person or to an account. If a general wins a victory, we give him credit for it, and his friends object if the credit is given to any one else. Preserving the idea of indebtedness, we may say that by this use of the word we give him his due. The etymology of the word takes us back to the Latin *credo*, "I believe," and the Roman accountants employed *creditum* as our bookkeepers do "credit," as signifying something due a person. John Stuart Mill in his *Political Economy* defines credit as being the permission to use another's capital. Mr. H. D. MacLeod in his *Theory of Credit* defines it as "a right of action."

These definitions are correct enough, but they do not set forth the relation of credit to money. When viewed as a medium of exchange credit is merely a promise to pay money. As a concrete definition that answers every purpose. A promise to pay money, when printed or written or in any other way given tangible form, is commonly called a "credit instrument." Promissory notes and greenbacks, for example, are credit instruments. Viewing credit abstractly, we may define it as the power to buy goods or services by giving a promise or contract to pay money in the future. These definitions tell us what credit is as a medium of exchange.

Mr. Mill's view of credit as permission to use another's capital calls attention to a very important service which credit performs. When a man borrows $1000 to increase the capital of his business, and gives his promissory note therefor, the lender has foregone the use of capital and permitted another man to use it. Hence, if we were discussing the production of wealth and the sources from which men get capital for business purposes, it would be correct to say that they get some of it by means of credit, whereby the man who has capital he does not want to use transfers it to one who does want to use it. In a transaction of this sort it should be noted, however, that the credit instrument upon which the transfer is based, namely the promissory note, is itself a promise to pay money. Modern industry would not be possible without the use of money and credit. Both enable men easily to get rid of those goods for which they have no use, and to obtain those which they want.

Mr. MacLeod's definition gives us the legal aspect of credit. A man who gives a promise to pay money gives a right of action against himself. The holder of the promise may sue him for payment and the law will enforce the payment. From the legal point of view, therefore, it is quite proper to speak of credit as a right of action. But that definition gives no idea of the importance of credit as a medium of exchange. The definition may further be criticised in that it is not at all certain that credit was not employed as a medium of exchange long before credit contracts were enforced by the courts of law.

29. In this book credit is treated only in its relation to money, i.e. as a medium of exchange; yet it should be noted that this is not its primary and most important use. It is as an instrument for the transfer of capital that credit is most useful to mankind. By capital the economist means all those forms of wealth — all those goods, such as tools, machinery, raw materials, and foodstuffs — which men use in the production of new wealth. These often belong to men who have neither ability nor desire to utilize them, and would go to waste or lie idle if our modern credit system had not been developed. This enables men of brains, energy, and skill, whom economists call *entrepreneurs* (i.e. men who undertake enterprises) to get possession of a country's capital and devote it to productive uses. The system is so finely organized that the average man, even though himself a borrower or lender, does not fully understand its mechanism. The *entrepreneur* does not borrow the capital, i.e. the tools, raw materials, etc., which he needs; he gets credit from a bank, and with that buys what he needs for the prosecution of his enterprise. He is commonly said to borrow "money," or "capital," but these popular expressions are inaccurate; he borrows credit, or, in other words, a right to demand money, and with that buys his capital, becoming the absolute owner of it. The popular idea that he borrows capital, or money, although not in accord with the scientific definitions of those terms, is justified, as will be shown later, by the necessary correspondence existing between the amount of credit which the banks of a country are able to lend and the amount of wealth within that country which the owners do not wish to consume or utilize in production.

30. Credit, it should be noted, is not itself a thing or commodity, nor does it create anything. It is merely an agency of transfer. No more wealth, no more capital, no more goods, exist after credit is given than before. Nevertheless the use of credit does lead to an increase of wealth, for it brings the productive agents of a country into the possession of those men who are most competent to utilize them. Just as the railroad has rendered the rich prairies of Nebraska and Kansas

available to the farmer, so does credit render available to the modern business man remote hoards of capital that would otherwise be idle. Indirectly, therefore, credit is an agent of production, and it is always a fair inference that a country possessing a highly developed credit system is making active use of its productive resources. In such a country it is fair, also, to infer that law and order prevail, for unless contracts are observed credit cannot flourish.

## Foundation of Credit

31. The basis of credit is confidence. No man will part with his goods in exchange for a promise to pay money unless he has confidence in the ability and will of the purchaser to keep the promise and make the money payment when it falls due. This confidence is twofold in character. The lender must, in the first place, feel morally certain that the borrower is going to be able to pay his debt; that his affairs are in such shape or that his business ability is such that he will be able to pay the debt when it is due. In the second place, the lender must feel certain that the borrower is a man of integrity who will not seek to avoid payment. It is evident that no one will part with something valuable in exchange for a mere promise if he is doubtful about the promise being kept. To be sure, the law protects the lender as far as possible, yet a man who is bent upon fraud is sometimes able to circumvent the law. The delay caused by litigation is vexatious, and men never voluntarily accept a credit instrument which is likely to be contested in the courts. Credit, therefore, is based upon confidence in character as well as upon confidence in business ability.

In the case of some credit instruments the lender's confidence is founded upon the property of the borrower as well as upon his character; as, for instance, when loans are secured by a mortgage upon real estate or other property of the borrower. Credit of this kind is of far less importance as a medium of exchange than credit which is not secured by mortgage. The greater part of the loans of our commercial banks is not secured by the pledge of property, the banks relying for their safety upon the character and business ability of the borrowers.

The confidence that underlies credit is not altogether personal. A man's ability to pay a debt usually depends upon his ability to sell goods, and that depends upon the ability of people to buy the goods and pay for them. The confidence upon which credit is based, therefore, is rooted in general business conditions. When times are brisk and the demand for goods is temporarily outrunning the supply, the credit of any individual is much better than when opposite conditions prevail, for more confidence is felt in his ability to carry on his business successfully and make good his obligations.

32. On account of this dependence of credit upon business conditions some writers have held that credit is based upon goods. They describe it as the power to "convert goods into means of payment," or as a "transfer of goods in consideration of a promise of a future return of equivalent value."[1] This view is given plausibility by some such illustration as the following. Jones, a miller, has five thousand bushels of wheat in a warehouse; he wishes to make improvements on his mill that will cost $1000, but has no money; by pledging the wheat as security he is able to borrow $1000 from a bank, thus converting the wheat into a means of payment. According to this view, the amount of credit available in a given community is strictly limited by the value of the bankable or easily salable goods in the community. As the reader can readily see, this is not the case. Banks do more than lend money upon the security of goods already in existence; they lend readily to men in whose power to produce goods they have confidence. In other words, that confidence which is the corner stone of credit may be founded either on the debtor's possessions or on his personal character and business ability. Credit is limited, therefore, not by a community's wealth, but by that plus lenders' estimates of its power to produce wealth.

Nor is it correct to say, as do some writers, that what men really borrow is goods, not money. What the borrower really

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[1] See Laughlin's *Principles of Money*, chap. iv; also Kinley's *Money*, p. 201.

*wants* is goods, but to-day what he always borrows is money or a right to demand money. Money, not goods, is what he promises to repay. With the borrowed funds, whether in the form of cash in hand or credit, he buys the goods he wants and makes use of them. They belong to him. He cannot pay his debt with them, for they are not what the lender wants. Those writers who say that credit transactions are loans of goods "expressed in terms of money," canceled by transference of "titles to goods" (that is, money) from debtor to creditor, speak in a vague and misleading metaphor. Money is not a title to goods or property. It is itself a good, a piece of property or wealth. It has real value as much as any other good or commodity that men use. Money, or the right to demand money, is the thing lenders part with, and money is the thing they want back. To say, as some do, that credit promises the return merely of equivalent value, the loan only having been "expressed in terms of money," is not true. Lenders do not want "equivalent value" in payment ; they want back the same thing they loaned, namely a definite sum of money or a satisfactory title to it; and they are satisfied with money even though a rise of prices may have made its value less than when they parted with it.

It may strike the reader that unnecessary emphasis is given to this point of relation between money and credit. It is an important point, however, and in the literature of money it has been sadly obscured by a careless use of words. Furthermore economists are prone to consider the problems of interest, profits, and wages, the whole theory of the production, exchange, and distribution of wealth, as if money were not used at all, it being assumed that the introduction of money as a medium makes no difference in results. Beyond question the general laws governing production and distribution can in that way be arrived at. It is right enough to say that the *real* profits of the *entrepreneur*, the *real* income of the lending capitalist, and the *real* wages of the workingman are goods, if the meaning of "real" in this use is correctly understood. The word, however, is susceptible of misinterpretation.

Wages, profits, and interest are not paid in goods but in money. If money were always stable and changeless in value, then changes in money wages would reflect changes in so-called "real wages." But money is not stable. It is not a title to goods. It is a fluctuating good, sometimes dearer, sometimes cheaper. It is more, therefore, than a mere medium of transfer, for by its changes of value it introduces into the business world a disturbing element that is lacking in the classical economist's world of barter. Hence, to be exact and scientific, we must be careful to describe things as they actually exist, not as they might exist in a hypothetical state. Shall we say that the average laborer is to-day paid in goods? Certainly not. He is paid in cash, and the dollars he gets do not always buy the same quantity of goods, for prices are constantly changing. In the same way the capitalist gets the principal and interest of his loans in money, not in goods. In the modern world of business money is the most important single commodity. It cannot be ignored as a mere go-between, yet that is what those writers do who declare modern credit to be the power to borrow goods on condition that an "equivalent" be returned in the future, and who assume that modern bankers lend goods and receive back goods from borrowers. Money is the thing men toil and sweat for in this world; it is the thing they borrow and repay; it is a real thing, not a mere title to something, and credit is its representative.

Is it not true, then, that credit is based on goods? It all depends on what that expression means. In a certain sense money itself can be said to be based on goods, for its exchangeability for goods is the essence of its value. Credit, being merely money *in posse*, has the same dependence upon goods, and also a dependence born of the contingent exchangeability of goods into money. The banker who lends $1000 to a grocer gives credit because groceries are easily marketable, that is exchangeable for money, and he would not lend the grocer a sum of money exceeding the sum his stock of groceries would sell for, nor indeed so large a sum. Undoubtedly back of all loans or credit transactions there is confidence in the lender's mind that wealth exists, or will exist, sufficient to liquidate the debt at maturity. But that wealth must be exchangeable, i.e. salable for money ; otherwise the lender refuses the loan. It follows, as already said, that the credit given in a community at a particular time is limited in a general way by the amount of wealth in that community; in that meaning and in that only is credit based on goods.

But there should be no quibbling about words. Whether we say that credit is based on money, on confidence, or on goods, the facts are clear. Every credit transaction to-day (barter credit,[1] like barter itself, being left out of account as unimportant) creates a contract to pay money, and can be settled or canceled only by the delivery of money or of another contract to pay money. The reader must not let this simple fact be obscured by the complexity of credit operations in modern business. In the United States we seldom see a gold coin. Almost all exchanges are made with credit, — with greenbacks, silver dollars, bank notes, checks, and bills of exchange, — one credit obligation being canceled by another. Yet underneath all these many millions of credit promises, giving them their value, rests the dollar of 23.22 grains pure gold. If doubt as to the convertibility of these promises into gold should once enter our heads, no matter how rich in goods the country might be, the whole vast mass of credit would begin to melt away, its value disappearing entirely if doubt became certainty, unless the law should give a new definition to "dollar" and provide for a new method of redeeming all outstanding credit.

## Credit of General Acceptability

33. From the point of view of acceptability, or usefulness as a medium of exchange, credit is divided, as we have already seen, into two classes : (1) credit of general acceptability; (2) credit of limited acceptability.

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[1] By barter credit is meant the swapping of goods, one delivery being deferred; or the borrowing of goods on promise to return the same, or an equivalent in other goods, at a later date. In such transactions money does not appear on either side, and no part of the bargain is "expressed in terms of money."

Credit of general acceptability includes those forms of credit which all persons within a country are willing to take in payment for goods delivered or services rendered. Credit instruments of this class are known as "credit money," and should possess at least four qualities: (1) they must be issued by a promisor in whom all the people have confidence; (2) they must be in convenient denominations; (3) they must be easily recognizable; (4) they must be difficult to counterfeit. In the United States the most familiar credit instruments of this class are the bank note, the greenback, and the silver dollar and certificate. These are mere promises to pay money, but every man has such confidence in the promisor that he is willing to take them in lieu of money. Since within the country they do all the work of money as a medium of exchange, they are popularly called money.

The bank note is a bank's promise to pay money to bearer. It is printed in convenient denominations and in some countries is made legal tender for the payment of all debts. The acceptability of bank notes is due to the prevailing confidence in the stability of banks and to the convenient denominations in which the notes are issued. Credit is a bank's stock in trade, something which it must maintain at all costs. Its failure to redeem one of its promises on demand means immediate bankruptcy and ruin. Banks, therefore, guard their credit as a woman does her good name, and as a result people come to feel that a bank's promise to pay money is as good as money itself.

Under government credit money is included all noninterest-bearing promises to pay issued by the government in denominations convenient for use as a medium of exchange. In the United States there are several kinds of this credit money which are described in Chapters XV and XVI. The people of the United States in their daily transactions use credit money almost altogether. The standard money of the country is gold, but very little of it, except in the Pacific coast states, is in circulation as a medium of exchange. It is estimated that all the gold in the country amounts to something like $3,859,000,000.[1]

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[1] September 1, 1922.

Of this sum the government holds about one fifth and the federal reserve banks have in their possession about $2,407,000,000. The government's promises to pay money are generally acceptable as a medium of exchange because of the popular confidence in the ability of the government to redeem its promises. If for any reason that confidence were shaken and people became doubtful about the credit money being redeemed, its acceptability would suffer at once.

Any form of credit which people generally are willing to accept in place of standard money becomes credit money whether so called or not. During the panic of 1893, for example, when confidence in the business outlook was thoroughly shaken, the use of personal credit was greatly restricted, and the demand for a generally acceptable medium of exchange to take its place far outran the supply. In many communities the "pay checks" of large corporations were made to serve as a sort of emergency currency. The people had confidence in the corporations although they had lost confidence in each other. These "pay checks," within the small field where they circulated, were credit money. They could not be called national credit money, for their circulation was limited. They were community credit money.

Credit money serves not only as a generally acceptable medium of exchange but also as a store of value. Men make no distinction between credit money and gold when they are laying aside currency for use in the future as a medium of exchange. Banks are glad to have their reserves in gold and gold certificates (the latter representing gold coin on deposit in the United States Treasury), yet they are almost equally well satisfied to have greenbacks or treasury notes of 1890, for these are redeemable in gold and are also legal tender. Credit money, however, is not a denominator or measure of value. It is in no sense standard money. It is a promise, and its value or purchasing power is derived from the value of the thing promised, namely money. The relation of credit money to the value of money, i.e. to the prices of goods, will be discussed in Chapters IV and XV.

## Credit of Limited Acceptability

34. Credit instruments of limited acceptability are issued under such conditions as make them an acceptable means of payment only within a restricted field. They include the promissory note, the bill of exchange, various forms of bank credit, and the book account.

A promissory note is an unconditional promise in writing to pay a certain sum of money at a stated time. It is the simplest form of credit instrument and is probably the first one that came into use. Such a note may be given by a man or woman, by a firm or corporation, in order to borrow money or in payment for goods. Promissory notes figure in all loan transactions, and, as we shall see later, constitute a large part of the property or assets of a bank.

For the protection of the holder of a promissory note a body of law exists in every civilized country, which aims to provide for all possible contingencies. A note, for instance, is a negotiable instrument if made payable to order or to bearer. We cannot enter into the law of promissory notes. For the present purpose it is sufficient to call attention to the fact that such an instrument will not be accepted except by men who have confidence in the maker or indorser. A promissory note, therefore, is capable of serving as a medium of exchange only within a narrow field. Its main use is not as a medium of exchange, but as an instrument for the transfer of capital from lender to borrower.

35. Bank credits are the most important form of credit in the country and furnish to the business world a medium of exchange often described as "deposit currency." A bank is an institution which deals in credit. The reader must rid his mind of the common notion that a bank deals in money. Just as a hardware store handles hardware, a dry-goods store dry goods, or a grocery store groceries, so a bank handles credit. Money is not the thing it deals in any more than money is the thing in which a hardware store deals. Since credit, however, is a promise to pay money, a bank must always have on hand considerable cash

in order that it may be able to keep its credit promises and so make its credit with its customers as acceptable as money itself.

That a bank deals in credit may be shown by a simple illustration. If a man wishes to borrow $1000 and enjoys good credit, people having confidence in his promise to pay money, he may write a promissory note for $1000 and discount it at a bank, by which is meant that he sells it to the bank for the sum promised on its face less the interest charged. If the note is payable two months after date, and the rate of interest is six per cent, the deduction on account of interest will amount to 1 per cent, or $10. He may take payment from the bank in one of two ways: he may take $990 in cash; or he may leave the currency with the bank as a deposit and take away a pass book and check book, drawing later upon the bank whenever he finds it convenient. In the United States and in England the latter method is usually preferred. Thus, as a rule, when a bank discounts a note for a customer, it at the same time increases its deposits; that is to say, it increases its indebtedness to depositors. The word "deposit," as is shown by this illustration, is a bank's promise to pay money to an individual, to a firm, or to a corporation. The evidence of the promise is merely an entry in what is known as a "pass book." Banks have learned by experience that all their depositors will not call for all the money due them on any one day, and so are enabled to make loans of this character much in excess of the amount of lawful money which they have on hand.

This illustration shows how credit figures in the business world. The borrower took his own credit to the bank and exchanged it at a discount for the credit of the bank, namely a bank deposit. The borrower took to the bank his own promise to pay money; he bore away from the bank the bank's promise to pay money; in other words, for the privilege of using the bank's promise to pay money to the amount of $990 this borrower paid the bank $10, or will have paid it when his note is finally liquidated. It is by transactions of this sort that the banks of the United States make their profits. They are more than lenders of other people's money; they lend their own credit. If they could not do that, their transactions would be much smaller in volume than they now are, and their profits much less.

## Operations of a Bank

36. An analysis of each of the operations of a bank may help the reader to a clear understanding of the relation of its work to credit. A deposit, as has been said, represents a bank's promise to pay money to an individual. To the bank it is a debt, to the depositor a credit. A man may become a depositor in three different ways: first, he may turn over cash to the bank; second, he may give it checks and other credit instruments which he has received from other people; and, third, he may give the bank his own promissory note. In all our large cities the first method of deposit is very little used. It has been found, for example, that the currency receipts of the New York banks amount to less than 5 per cent of the total receipts. Deposits are mainly in the form of credit instruments. From the legal point of view a deposit is a right of action against the bank for money, but the depositor has no claim on the bank for the identical pieces of currency which he deposited. The cash or credit instruments left by a depositor with a bank become at once the property of the bank. It has bought them with its credit and may do what it will with them.

A check is a depositor's order upon a bank to pay money to an individual, a firm, a corporation, or any other legal person. Sometimes a depositor, wishing the fact of his credit at his bank placed beyond question, gets a check certified; that is to say, the cashier writes or stamps "certified" across the face of it and puts his signature below. When a check has been certified it becomes the bank's promise to pay money, the depositor's account having at once been debited as if the check had been paid. A check, it should be noticed, is not a direct promise to pay money; it is an order upon a bank. The law makes it, however, the writer's implicit promise that the money will be paid. Any man obtaining goods by giving a check upon a bank in which he has no deposit account is liable to prosecution for obtaining goods under false pretenses. A cashier's check is an order on a bank signed by the cashier. In essence it is the same as a customer's certified check.

A bank draft is an order of one bank upon another to pay money to an individual, a firm, or a corporation. Each bank makes a practice of keeping deposits with banks in other cities in order that they may be able to "draw" upon them. A draft, like a check, is on its face an order to pay money, but it is equivalent to a promise that the money will be paid, such being the understanding between the bank and the buyer of the draft. The important uses of bank drafts are explained in Chapter V.

The check and draft, since they are based on the bank deposit, are known as "deposit currency." They are such a convenient medium of exchange that business men employ them wherever possible, for they save the counting and handling of money. If every check and draft had finally to be paid with money, it is evident that their use would in the long run effect no economy in the use of money. But liquidation in money is usually not necessary. For illustration, let us suppose that A, B, and C have deposit accounts in the same bank, that A owes B $100, that B owes C $100, and that C owes A $100. Let each pay his debt by check, and let each deposit in the bank the check which he receives. When the bank receives A's check it will debit A's account $100 and credit B's account $100; and so with each check, all the payments being effected without the use of any money. The bank, being a common debtor to several individuals, is able by a mere transfer of credits on its books to cancel or liquidate the indebtedness between the individuals.

Even if the checks in the foregoing illustration were deposited in different banks, no money need change hands, for the banks in all our cities have organized an institution which serves them as a common debtor just as they serve individual depositors. This institution, which is supported jointly by the banks of a city, is called a "clearing house." It is a comparatively modern invention. As already shown, a bank's deposits consist largely of checks and drafts upon other banks in the same city. Before clearing houses were organized it was necessary for each bank to send messengers out to collect payment of these. This not only took time and was not safe, the messenger being often waylaid by footpads on his return journey, but it necessitated the handling of a great deal of currency. Under the present system each bank sends a clerk to the clearing house, once or twice a day, with all the checks and drafts it has received upon other banks. At the clearing house the claims of all the banks upon each particular bank are totaled. A bank which has claims upon other banks greater than their claims upon it evidently has a net balance in its favor and is called a "creditor bank" for that day. On the other hand, a bank whose claims are less than the claims against it at the clearing house is a "debtor bank." Each debtor bank sends to the clearing house the balance which is due from it in the shape either of currency[1] or of a check upon some designated bank with which the clearing house and all the banks have deposit accounts. In London, for example, banks pay clearing-house balances by check upon the Bank of England. The balances due each day from the debtor banks are, of course, just equal to the balances due to the creditor banks, and this amount is paid to the latter by the manager of the clearing house.

By the simple machinery of the clearing house the mutual indebtedness of banks is "cleared" with the use of very little money. For example, in 1920 the average daily clearings at the New York clearing house, by which is meant the average value of the credit instruments sent each day for collection, was $830,060,031, while the average daily balance paid by the banks was only $82,948,067, or about 10 per cent of the total clearings, and this was settled by debit and credit entries on the banks' accounts at the Federal Reserve Bank.

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[1] To render the handling of legal-tender currency unnecessary in the settlement of debts between banks, the law permits the use of gold clearing-house certificates, which are issued to banks by the clearing house in exchange for gold deposited with it. These certificates are legal tender between banks, but cannot be used by individuals. For many years banks used for this purpose "currency certificates," which were bills in large denominations issued to banks by the government in exchange for United States notes. The issue of currency certificates was discontinued by the law of March 14, 1900, gold clearing-house certificates and gold certificates issued by the government being substituted.

37. The "book account" is a general name given to all forms of credit of which the record is a mere matter of bookkeeping. It includes the retailer's accounts with his customers, the accounts of wholesalers, and those of manufacturers. It includes also the accounts kept by operators on stock and produce exchanges, many of them based upon a mere nod of the head or crook of the finger as the parties are standing in the midst of a howling mob. When a man buys anything and has it charged, he buys it with credit in the form of a "book account." This kind of credit is probably the means of effecting more exchanges in this country than any other single form. Book accounts are finally settled either by some other form of credit, as by check or draft, or by the payment of cash. In the United States accounts between merchants are usually settled by check or draft. Most of the accounts of retailers with individuals, especially in the cities, are settled by check at the end of each month.

A bill of exchange, or commercial draft, is an unconditional order in writing by one person to another, requiring the payment of a certain sum of money. It originates in a sale of goods, the seller "drawing" upon the buyer. A foreign bill orders the payment of money in a foreign country. When the drawee has accepted a bill it becomes his promissory note and can be negotiated.

38. Various other forms of credit, such as the postal money order and the money orders of express and telegraph companies, serve as means of payment in a limited way, but it is not necessary to describe them. We have considered all the common forms of credit of limited acceptability. In the United States nearly all large payments are effected by the use of some one of these forms of credit. It should be noticed that some have a wider field of circulation than others, and that none of them is universally acceptable as a means of payment. Among business men the bank draft and certified check have almost a general

acceptability, being more acceptable than money itself for the settlement of large transactions usually. Their acceptability is due to the confidence which men have in banks. The draft and certified check, however, do not deserve the name of credit money, for they are not used by people generally and are not everywhere accepted as a means of payment. A man cannot buy a railroad ticket with a certified check, and hotels, as a rule, decline to cash drafts and checks of any kind when presented by strangers.

All these kinds of credit, on account of their limited acceptability, have a short life and are generally presented for payment soon after they are received. It is evident, therefore, that any increase in the volume of these credit instruments necessitates an increase in the reserve of money which secures their ultimate payment. While, as we have seen, not every check is liquidated with money, yet experience has shown that the amount of a bank's monetary reserve in vault or its reserve deposits at other banks should increase in proportion as the volume of its transactions enlarges.

### Two Important Uses of Money

39. It is important to note the distinction between the use of money as a banking reserve and as a hand-to-hand medium of exchange. A dollar in a bank, serving as a basis of credit, is usually more efficient as a medium of exchange than when in circulation among the people. For example, the manager of a bank with deposits amounting to $500,000 may find that $100,000 in money is an adequate reserve. Checks amounting to more than $100,000 may be drawn by the depositors, but he is not called on to cash all of them ; some are deposited by the payees in his bank, while others are offset at the clearing house by checks of other banks deposited in his bank by his regular customers. Thus a dollar in a banking reserve may be made to mediate several exchanges at the same time. Hence it is necessary to distinguish between the use of money as a basis of credit in banking reserves and its use as a common medium of exchange, or, to use a popular expression, as "hand-to-hand

money." The importance of this distinction will become more evident when we analyze the circumstances governing the demand for money.

Owing to the fact that in the United States and in many other countries certain forms of credit money are made legal tender by the law, these become as efficient in banking reserves as money itself. In the United States the greenback, the Treasury note of 1890, and the silver dollar and certificate are "lawful money," and are counted in bank reserves as equivalent to gold.

40. In the foregoing analysis of credit instruments only those have been considered which are particularly available as a medium of exchange or means of payment, thus serving in a sense as a substitute for money. It must not be forgotten that the primary purpose of credit is to effect the transfer of capital from the hands of men who do not want to use it to the hands of those who do want to use it. To effect such transfer is the purpose, indeed, for which banks exist. The use of credit as a common medium of exchange is secondary and incidental. Some of the forms of credit most useful as instruments for the transfer of capital are not well adapted to serve as a medium of exchange. Such, for example, are the mortgage bonds of corporations, and the interest-bearing bonds of nations, states, counties, and cities. These are credit instruments and are transferable, but their value changes as the date of maturity approaches, and a transfer of ownership is attended by time-consuming formalities. For these reasons they do practically no service as a medium of exchange. As claims upon property they are an acceptable security for loans by banks and so lead to an increase in the volume of deposit currency, but mortgages and bonds themselves seldom pass from hand to hand as a means of payment.

### SUPERIORITY OF CREDIT

41. Credit is a swifter and more convenient medium of exchange than money. As a tool of exchange money is a great time saver. Credit, however, performs the same service and does it with infinitely greater rapidity. Money surpasses barter

as the modern railroad "flyer" surpasses the crawling canal boat, but credit leaps to its task with the swiftness of electricity. If the world were stripped of its telegraph wires, its means of communication would not suffer more than would the business world if credit were destroyed.

Almost all large payments in this country are made by check or draft. Even if a man has the currency actually in hand, he usually deposits it in a bank and makes payments with checks. Without the use of credit a large part of the business upon which the prosperity and welfare of this country depend could not be consummated. The government, for instance, when it paid $20,000,000 for the Philippine Islands did so by a few strokes of the pen.

Credit, being the swifter and more convenient medium of exchange, is employed by men to the fullest possible extent. This proposition follows logically from what has been said in preceding paragraphs, but the reader must bear in mind that the conditions determining the use of credit differ in different countries. For example, on the continent of Europe credit is less employed than in England and the United States. The people of the continent do not use the check book and the bank deposit to the same extent as the people of England and the United States. Nevertheless they employ credit to some extent at all times, and their use of it tends to increase when conditions grow more favorable to its employment. Likewise, in the United States, whenever confidence in business prosperity is growing and each man's prospects are improving, men become more willing to extend credit and promptly do so. As a general proposition, therefore, it may be said that the use of credit in any country tends to increase whenever any circumstance broadens the confidence upon which it is based, credit thereby becoming relatively a more important medium of exchange, and money less important.

42. A good credit system is one which provides for an automatic increase or decrease in the volume of credit whenever such increase or decrease is demanded by business conditions. If we contrast the work done by the two different classes of credit, that

of limited acceptability with that of general acceptability, it is easily seen that they are born of entirely different conditions. Transactions between individuals who have confidence in one another are most easily effected by the use of credit having limited acceptability. Transactions between individuals who lack this confidence, or who are not accustomed to bank credits, call for the use of money or some form of credit having unlimited acceptability, i.e. credit money. The use of these two classes of credit, it will be seen, varies with the degree of confidence that exists in a business community. In times of lessening confidence there is increasing need for credit money to do the work which no longer can be done by the other forms of credit; in times of prosperity, when confidence is growing, the need for "hand-to-hand money" lessens, for a larger proportion of the transactions can be effected by limited credit. An ideal credit system would be one which provided for these changes in the volume of the different classes of credit respectively, without any conscious effort on the part of men.

So far as credit of limited acceptability is concerned, the system now in use in the United States appears to be ideal. There is no restraint whatever in this country upon the creation and use of checks, drafts, and book accounts. The law attempts no more than to secure the redemption of such promises when they have once been made. Their volume rises and falls in harmony with the needs of business. National banks are required by law to maintain reserve deposits with their respective federal reserve banks and must not suffer them to fall below a fixed ratio to their deposit liabilities; but these requirements are probably not less severe than the prudence of bankers would impose if the law were silent.

With respect to the other class of credit, however, the problem of attaining an ideal system is more difficult of solution. In some quarters it is urged that the government should attempt its solution by the issue of additional greenbacks or United States notes based upon some sort of security. By others it is held that the problem can be solved only by giving banks the same freedom with regard to the issue of bank notes that they have enjoyed with regard to bank deposits. The United States attempted to solve this difficult problem in 1913, when the Federal Reserve Act was passed, permitting the issue of federal reserve notes freely against commercial paper, just as bank deposits are created by making loans.[1]

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[1] The credit system of England, like that of the United States, is highly developed with respect to credit of limited acceptability, the law making no requirement with regard to the amount of banking reserves; but in relation to credit of general acceptability the English system is defective, the Bank of England not being permitted to issue a bank note unless it is secured by a deposit of gold equal in amount to the face of the note. Bank of England notes are practically gold certificates; since their issue involves the disappearance of an equal amount of gold, they are a mere substitute for gold and cannot be made to expand or contract the currency as business needs require.

In other European countries note-issuing banks are subject to fewer restrictions than in England or the United States. The Bank of France, for example, is practically under no legal restrictions with regard to the issue of notes, and is able at all times to supply the country with all the currency that is needed. There is a nominal limit to the volume of notes that may be issued, but this limit has always in the past been raised when the growth of the country seemed to require an increase, and will probably be raised in the future. The continental countries of Europe, however, make relatively small use of so-called "deposit currency," not because the law hinders, but apparently because the people have not discovered its advantages over coins and bank bills.

The credit system of Canada is in many respects ideal. The law leaves the question of reserve to each banker's judgment, and permits a bank to issue notes to the amount of its paid-up capital stock, imposing no requirements as to security. As a result of this freedom, credit of both kinds, that of limited and that of general acceptability, never fails in Canada to satisfy the fluctuating needs of the business world.

The subject of credit money is discussed at length in Chapter XV.

# CHAPTER IV

## CIRCUMSTANCES AFFECTING DEMAND AND SUPPLY

43. The demand for money, like the demand for any other commodity, depends on a variety of circumstances. 44. It depends on the use of credit, on the rapidity of circulation, and on the total volume of exchanges. 45. Credit lessens the need for money as a medium of exchange and as a store of value. 46. The need for money as a basis of credit, — a need which property cannot fill. 47. Credit increases the efficiency of the money supply, and thus increases the importance of each money unit. 48. Credit is analogous to the "short sale" of a commodity. 49. The use of credit increases with the growth of confidence. Bank statistics are a clew to the quantity of credit in use. 50. The more rapidly money circulates, the less the need for money as a store of value. Increasing rapidity of circulation is equivalent to an increase in the supply of money. 51. The demand for money tends to vary with the total volume of exchanges; it depends, therefore, on population, production of wealth, business organization, division of labor. 52. Changes in the value of money are not more difficult to forecast than changes in the values of other goods. 53. The supply of commodity money is automatically regulated. The law of cost. 54. The supply of fiat money is regulated artificially.

43. By demand for money is meant the need for money utility, that is for wealth or value in a form universally acceptable as a medium of exchange or means of payment. By supply of money is meant the quantity of money units available for use as a medium of exchange. Since the utility of a piece of money varies directly with its value, the supply of money utility in a country depends upon the value of each piece as well as upon the total supply of pieces, and tends to vary directly with the demand, of which it is the product.

The foregoing propositions have already been explained and illustrated. It now remains to consider certain important circumstances upon which the demand for and supply of money depend. A similar investigation would be necessary if we were endeavoring to analyze and account for the value of any other good. When a business man seeks to explain or forecast changes in the value of cotton, he is compelled to examine the conditions upon which the demand for and supply of cotton depend. Is a larger acreage under cultivation, so that a larger supply is forthcoming? Has the demand been increased by the discovery of new uses for cotton, or by any improvement in the economic condition of those classes who are the largest consumers of cotton? Is the increasing use of some substitute tending to lessen the demand? Are improvements in manufacture making cotton goods more durable and so tending to lessen the demand for the raw article, since a given supply will last longer; or do these improvements, by bringing cotton goods into greater favor, enlarge the consumption so much that the demand for the raw good is increased? Calculations of this sort are necessary to the explanation of changes in the value of any commodity. Money is no exception. The value of money, like that of all other things, is determined by demand and supply, and if we wish to explain changes in it, we must take into consideration the conditions or circumstances upon which demand and supply depend.

In the case of no good is exact measurement of the demand possible. The supply of a good on the market is something tangible and can often be definitely ascertained; but the demand depends on the inconstant wants of humanity, and is something that cannot be measured or photographed; it can be only roughly estimated by the quantity of goods called for. The conditions governing the supply are comparatively simple, while those governing the demand are numerous and variable. Changes in the value of money cannot be understood and explained without some knowledge of the conditions upon which demand and supply depend.

44. Since the demand for money is the desire or need for it for use as a medium of exchange and as a store of value, it is evident that any circumstance affecting the volume of exchanges to be made with money, or affecting the need for money as a store of value, must change the demand for money, and so tend to change its value and cause the general level of prices to rise or fall. In order, therefore, to account for any change in the level of prices we must examine all the known conditions governing the volume of exchanges performed by money

and those determining its use as a store of value or basis of credit. Upon analysis we find that there are three such conditions which are important: (1) the use of credit; (2) the rapidity of the circulation of money; (3) the total volume of exchanges.

### Relation of Credit to Money

45. Credit tends to lessen the demand for money for use either as a common medium of exchange or as a store of value. That credit lessens the demand for money and so maintains prices at a higher level than they would otherwise hold, will be seen clearly if one considers what would happen if banks notified depositors that their accounts would not be welcome if they made a practice of writing checks for less than $100. Such action by the banks would compel us to make all ordinary payments by means of currency (that is, money or credit money). Every man would be obliged to carry much more cash than he does at present, and the demand for currency would in consequence be enormously increased. If the supply of money or credit money, such as bank notes, were not at the same time increased in a corresponding amount, the value of money would rise; in other words, prices would fall.

A panic furnishes an excellent illustration of a change in the use of credit. In times of panic, when every man questions his neighbor's solvency, that confidence which is the foundation of credit is shaken, and men are less willing than usual to accept promises of money in lieu of money itself. As a result, a panic is always marked by a startling fall of prices, which is the result of the increased demand for money caused by the disuse of credit. After the panic is over men slowly regain confidence in the outlook and credit comes into use again, the demand for money decreasing and prices rising.[1] In the United States the increased need for money caused by panic has usually received tangible illustration by the importation of gold. For example, during the panics of 1884, 1890, and 1893 many million dollars' worth of gold was imported from Europe. Most of it was re-exported after the panics were over, the revival of credit rendering its presence here unnecessary.

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[1] In 1892 the amount of lawful money held by the banks in this country was 33 per cent of the monetary stock; in 1893, on account of the panic demand for currency, the percentage declined to 29; in the dull and quiet year of 1894 the percentage rose to 38, but declined again during the uncertainties of 1896 to 29. See *Report of Comptroller of Currency for 1902*, Vol. I, p. 41.

Credit lessens the demand for money to serve as a store of value in two ways: (1) the use of credit in the form of checks, drafts, etc., reduces the amount of currency which men need on hand in pocketbooks or cash drawers; (2) credit in the form of credit money, being universally acceptable as a medium of exchange, serves as a store of value in the pockets of the people and in the tills of shopkeepers quite as well as money itself. Those forms of credit money which are made a legal tender for the payment of debt figure in banking reserves as a basis for credit quite as prominently as money itself. Federal reserve banks in the United States, for example, are permitted by law to count as lawful money not only gold and gold certificates but also credit money in the form of silver dollars, silver certificates, the United States notes known as greenbacks, the Treasury notes of 1890, and subsidiary silver. In England the notes of the Bank of England are legal tender, and by all banks except the Bank of England itself are used in lieu of gold. The use of credit money as a basis for further credits has been greatly abused, and in the opinion of many financiers is a source of weakness and possible danger in the monetary system of the United States. There can be no doubt, however, that such use of credit money lessens the need for gold in this country.[1] The credit instruments which serve as a medium of exchange are all promises to pay money, and there must always be enough money in existence to maintain confidence that these promises will be honored and redeemed.

Just how much money is needed to serve as a basis for credit it is impossible to determine except by experience, for the amount is not the same in different countries nor in the same country at different times. In the United States the basis for credit consists of the banking reserves and the $150,000,000 in gold held by the national Treasury. The law in this country and in some others prescribes the minimum reserve to be held by banks, but bankers have learned that this minimum is at some times more than is necessary and at other times much less. How much money should be set aside as a basis for credit? To that question the only correct answer is, Enough to maintain that confidence which is the corner stone of credit. That a certain amount of money is absolutely necessary has been abundantly proved by experience.

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[1] On September 12, 1914, the national banking reserve consisted of $156,000,000 gold and $747,000,000 credit money; total, $903,000,000. On this as a basis rested demand deposit credits amounting to $5,300,000,000. Of the total reserve, 82 per cent was credit.

46. The fact that money is and must ever be essential as a basis for credit needs emphasis, for some writers, impressed by the magnitude of the work which credit does, have shown a tendency to treat it as if it were an independent entity that might some day dispense with the need of money altogether. These writers hold that credit is based upon wealth in general, and ignore its dependence upon money. Credit is a contract to deliver not property or wealth in general but money. A man who owns a thousand bushels of wheat, by giving his promissory note and pledging the wheat as security for its payment, can obtain several hundred dollars in money or secure the acceptance of his note in payment for goods. The promissory note, however, is a promise to pay money, not wheat, and would not be accepted if there were any doubt about the money being obtained if it should be wanted. Wheat is accepted as a satisfactory basis for credit simply because wheat is marketable and can in ordinary times be sold for money. If, however, a man has wealth of a kind which cannot be readily sold, such as a farm, notwithstanding it has undoubted value, he finds difficulty in making it the basis for a loan. The fact that real estate is not easily marketable is responsible for that clause in our Federal Reserve Act which limits our national banks in making loans upon real estate. Good banking policy requires that bank credit shall be based upon those forms of wealth which are quickly and easily convertible into money. The notion that credit is

based upon wealth in general was largely responsible for the wild-cat currency issued by banks in this country during the first half of the nineteenth century. It was argued that bank notes, since they were based on actual wealth, needed no redemption in specie in order to be good. English bankers put forth the same view during the so-called "restriction period"[1] (1797–1821). Wherever this theory has been put into practice panic and destruction of credit have resulted.

47. Credit increases the efficiency of money. This proposition sets forth no new relation between money and credit. It merely presents in a new way that relation between credit and the demand for money which has already been explained. As we have seen, a given sum of money, by serving as the basis for credit, may through the agency of banks and clearing houses give rise to a volume of deposit currency several times greater in amount, bankers having learned by experience that only a small proportion of the checks written will have to be paid in cash. Each bank in the ordinary course of business receives checks drawn upon other banks, sufficient in the long run to offset the checks upon itself which fall into the possession of other banks. Thus through the agency of credit a small sum of money is made the basis for the settlement of a large volume of transactions. Hence it can be correctly said of credit that it multiplies the capacity of money as a medium of exchange. Just as the lever increases man's lifting power, so credit increases the efficiency of money. A reserve of $100,000 in a bank rests, as it were, on the end of the long arm of the lever and supports business transactions amounting to $500,000 or more. Pursuing the analogy, we might say that the fulcrum supporting this credit lever is confidence, for changes in confidence always necessitate readjustment.

It is a mistake to suppose, as several writers appear to have done, that credit in any way increases the supply of money. Since credit instruments serve as a medium of exchange, credit does increase the supply of that medium, but it does not and cannot increase the supply of money. Credit merely increases the efficiency of money and so lessens the need for it, for it enables a country to get on with a smaller supply of money than would be necessary if credit were not used. Since, however, goods can be bought with credit as well as with money, any increase in the use of credit means a real increase in the demand for goods, and advances prices quite as much as if money itself had been offered. The prices of goods are therefore the combined result of the money and credit offered in exchange for them.[1]

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[1] See Chapter XIV, section 197.

The truth of this statement, however, does not imply, as some writers seem to assume, that price is independent of money. The price of a thing is the amount of money it is exchanged for; it represents the value of the thing in money, and never anything else. Credit, by economizing the use of money, merely increases its effectiveness, enabling a given supply to exchange more goods than it could exchange if the actual delivery of money were demanded. The need for money to consummate a given volume of exchanges diminishes, therefore, in proportion as the use of credit increases.

Credit increases the importance of each unit of the money supply. This proposition may seem at first paradoxical. In fact some writers upon money[2] have set forth the opposite view, holding that since the great bulk of business transactions are settled by means of credit, the quantity of money in a country is of comparatively small consequence. They seem to regard credit as a distinct entity, having an existence independent of money itself. Even though the population and the production of wealth increase, and the transactions of the business world grow in magnitude, nevertheless, according to this view, credit easily furnishes all the necessary increase in the supply of the medium of exchange.[3] The reader should have no difficulty in discovering the fallacy which underlies this view of credit and money. Nobody knows to what extent credit may multiply the efficiency of money, but our ignorance on this point need not confuse us as to the real nature of the whole transaction. The thing to be noticed now is the fact that money is necessary as the basis for all credit exchanges, and that the importance of each dollar must grow with every increase in the volume of credit transactions for which it furnishes the basis. In a community where no credit is used, the loss of $100 means a reduction by that amount in the power of the community to make exchanges at one time ; but if the community has an expanded credit system, then the loss of $100 will reduce its capacity for exchanges by five times, ten times, perhaps twenty times $100. An increase of the supply of lawful money, such as takes place when a government prints legal-tender paper money, increases the country's capacity for making exchanges far beyond the amount of currency that is added to the country's circulation ; and a decrease of the supply, such as has sometimes happened in the United States when national revenues were exceeding expenditures, lessens the purchasing power of the people and restricts business operations by an amount much greater than is indicated by the sum that is taken out of circulation.

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[1] In a state of commerce in which much credit is habitually given, general prices at any moment depend much more upon the state of credit than upon the quantity of money. — J. S. MILL, *Political Economy*, Book III, chap. xi, 3.

[2] See Lord Farrer's *Studies in Currency*, p. 188.

[3] And, conversely, it is held by Lord Farrer and some others that any addition to the money supply can have very little effect on its value. Carlile in his *Evolution of Modern Money* (p. 283) gets so far away from the truth as to think that modern

It is not possible to employ credit as a complete substitute for money. That view of it leads to the fallacious belief that we may entirely dispense with the need for money. Credit is rather a device for increasing the efficiency of money, and in doing this it increases the importance of each dollar in the country. Hence changes in the quantity of money in existence are of more consequence when credit is used than when it is not.

48. Credit is analogous to the sale of a commodity for future delivery, and may be called a "short sale" of money. A man who goes "short of wheat" is one who makes a sale of wheat when he has none. He hopes to be able to buy wheat at a

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banking reserves are analogous to old-time "hoards" in preventing surplus gold from acting on prices. The gold which gets into banks usually has a much greater effect on prices than that which people keep to spend.

lower price before he is called upon to deliver. Although money is not sold in the sense that wheat is sold, nevertheless every purchase of a commodity is in effect a sale of money, and a credit purchase is merely a short sale of money, the buyer entering into a contract to deliver money at some future time. Credit purchases in effect are equivalent to an increased offering of money for goods, and tend to lower the value of money just as the speculative sales of wheat tend to depress its value.

It may be objected that the value of a commodity like wheat is never seriously affected by short sales, for every short sale necessitates an offsetting purchase at a later date. In the case of money, however, perpetual short sales are possible, as is evidenced by the business of bankers; for the greater part of their short sales of money (credit transactions) are offset by others. In the case of wheat the day of settlement is never far distant and the stock of wheat available for use by the bears is steadily disappearing into the miller's hopper. But men who make contracts for the future delivery of money face no inevitable day of reckoning and are perpetually able — unless their excesses bring on panic — to fulfill their contracts with others of the same sort, thus permanently depressing the value of money.

It is clear, therefore, that the value of money is actually depressed by any increase in credit purchases of goods, the buyers giving contracts to deliver money at a future time. The effect of purchases with credit is similar to that of purchases with money. We may say, therefore, that an expansion of credit amounts to the same thing as an increase of the money supply, and gives an upward tendency to the prices of goods. This statement must not be taken to mean that credit really increases the supply of money. It exerts an influence on the value of money solely by lessening the demand for it; that is, by increasing the efficiency of each dollar it renders fewer dollars necessary for the consummation of a given volume of exchanges.

49. Since credit is based upon confidence, the use of credit tends to increase as men grow more confident with regard to the future of their business. In good times, when the demand

for commodities is steady, when the wheels of factories are all turning, when labor is fully employed at good wages, men extend credit to their customers readily and the banks loan freely. In such times, on account of the growth of confidence, credit expands and prices rise. On the other hand, if some national disaster has impaired men's confidence in the business outlook, if floods or frosts have ruined important crops, if war is threatened, or if legislation hostile to certain industries is feared, business men grow anxious about their future obligations and become more cautious in their extension of credit to customers. This shrinking of confidence and consequent contraction of credit sends a thrill through all markets and the prices of most goods tend downward.

It is impossible to determine with any degree of exactness the influence which credit is exerting at any given time upon the prices of goods. Changes in prices may be the result of many different factors, and we can never attribute to any particular one the precise measure of its importance. With regard to the influence of credit we know only that conditions exciting hope and confidence among business men always tend to increase its use and to stiffen prices, and that opposite conditions unsettle prices. We can get a fair estimate of the quantity of money in a country, but credit is an imponderable thing which we cannot measure. There are no statistics showing the volume of transactions performed by credit at any given time. To gather such statistics would be a most difficult and delicate task and has never been attempted.[1]

Bank statistics furnish the only clew we have to the volume of credit transactions. It is a fair inference that the volume of deposit currency increases with the growth of bank deposits, loans, and discounts. The results which follow the establishment of a new bank show how this comes about. When a bank is opened in a community which has hitherto had no banking facilities, it becomes convenient for the people of that community to open bank accounts and make many of their payments with checks; the need for money is correspondingly diminished. If, therefore, the number of banks in a country is increasing more rapidly than the population and the volume of business transactions, we are justified in concluding that the use of credit as a medium of exchange is becoming more important.

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[1] The Comptroller of the Currency in 1895, assisted by Professor David Kinley, obtained reports from representative firms throughout the United States, from which Professor Kinley drew the inference that possibly 75 per cent of the business transactions of the country were effected by credit.

A fair index to the use of credit is also furnished by bank clearings and by reported debits to individual accounts on the books of the banks. While these figures are not an accurate measure of the full amount of credit business done through the banks, yet gains in the totals, except such as may be attributed to the normal growth of population and increase of production, may fairly be ascribed to changes in the relative importance of credit as a medium of exchange.

## RAPIDITY OF CIRCULATION

50. The more rapidly money circulates, the less the demand for it to serve as a store of value, and hence the less its value. The relation of what is commonly called the rapidity of circulation of money to its value can best be explained by an illustration. Let us suppose that in New York City the total volume of exchanges effected each day by actual transfer of cash amounts to $200,000,000 and that the amount of cash in that city (not counting that in bank reserves) is $100,000,000. It is evident that on the average each dollar performs two exchanges each day. Suppose now that in Chicago the daily exchanges in which currency is used foot up $100,000,000, and that the supply of cash outside the banks is only $25,000,000. Evidently in Chicago each dollar is effecting an average of four exchanges daily, and we can say that money circulates more rapidly, or changes hands more often, in Chicago than in New York, and therefore that less money would be needed in Chicago than in New York to consummate the same volume of exchanges during a given period of time.

The reader should notice that the rapidity of circulation does not lessen the need for money for use as a medium of exchange at any particular moment. That need depends upon the volume of exchanges which men wish to perform with money at the given moment. In the phrase "rapidity of circulation" the element of time is necessarily implied, for there can be no circulation of money except during a period of time. In what way, then, is the rapidity of circulation related to the demand for money? It lessens the need for money as a store of value. In a community where each dollar performs on the average four exchanges a day, money is more actively employed than in a community where a dollar changes hands only once a day; in the former at any given moment the proportion of the money supply lying unused in people's pockets is smaller than in the latter. Hence the demand for money decreases as the circulation of money becomes more rapid.

As a factor causing changes in the value of money the rapidity of circulation is not of great importance, nor is its relation to money in any way unique or peculiar. It is not important for the reason that it is not, like credit, subject to great variations. In any community it is a pretty constant quantity. The frequency with which a dollar changes hands clearly depends on the circumstances which determine how much money it is convenient for people to keep in store for future use. These circumstances are not the same in different communities, but they do not vary much from day to day or from season to season in the same community. In a rural district, for example, with the nearest bank ten miles away, and the check book unfamiliar, the leather wallet of the average farmer naturally holds more money than the purse of the average city man. The farmer's hired man stows away his wages in his trunk, keeping the same coins and bills for months in anticipation of the holiday when he can go to town and buy a new suit of clothes; whereas the city workman seldom has in his possession more than a week's wages, all else having been spent or put into a savings bank or a building and loan association. The conditions of country life oblige men to keep on hand larger sums of money than are needed by men in towns and cities. That is all that is meant by the statement that the rapidity of circulation of money is greater in the city than in the country.

To consider in detail all the conditions governing the rapidity of circulation of money would be a long and profitless task; it would be merely an inquiry into the conditions governing the need for a store of money utility. This need is not subject to sudden variations, being fixed by habit and environment. Furthermore it is not something peculiar to money. If ten farmers use a grindstone in common, the "circulation" of grindstones in that community is more rapid than if each farmer owned one, and the need or demand for them is correspondingly less. So the roller towel of the frontier hotel, by the rapidity of its circulation, diminishes the demand for towels; and Mr. Dooley's "pot of stirabout," offering its utility to the entire family at the same instant, lessens the demand for pots and dishes in the land where it is popular. These homely illustrations suffice to show that money is not the only commodity whose value is influenced by the rapidity of its circulation.

The rapidity of circulation of money, or the efficiency of money, is usually described as if it were a factor influencing the supply of money. Francis A. Walker, for example, says that the supply of money "is composed of two factors, — the amount of money and the rapidity of circulation."[1] Mr. Mill expresses the same idea as follows: "The value of money is inversely as its quantity multiplied by what is called the rapidity of circulation. . . . The quantity of money laid out is not the same thing with the quantity in circulation."[2] This treatment of the subject gives the student an impression that the supply of money is in some way different from the supply of any other commodity, and is apt to confuse him. Any increase in the efficiency of money, whether the result of credit or of the rapidity of circulation, increases the volume of transactions which can be effected by a given supply of money, and so can be viewed as equivalent to an increase in the supply of money itself, and as having a similar effect on prices. But the change in prices is not the result of any change in the supply; it is the product of the diminished need for money. As the efficiency of any tool is increased, the need for such tools for a given amount of service is reduced. For example, if a railroad adopts an improvement which increases the speed of its locomotives 10 per cent, unless its business also increases its need for locomotives will be reduced by 10 per cent. The increase in locomotive efficiency would be equivalent in effect to an increase in the supply of locomotives.

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[1] *Political Economy* (advanced course), p. 131.

[2] *Political Economy*, Book III, chap. viii.

Some writers attribute too much importance to the tendency of money to vary its rapidity of circulation as the demand varies. They hold that an increase in the demand for money is usually attended by increased efficiency of the existing supply, so that no actual increase of the supply is necessary. It is quite possible that dollars change hands more often during a panic than in ordinary seasons, but the increase in the rapidity of circulation of money during a panic is never equal to the increase in the demand for money, as is evidenced by the fall of prices always accompanying a panic. During ordinary times there is no reason for believing that changes in the demand for money are offset to any extent whatever by changes in the rapidity of money's circulation. That is dependent upon the habits and environment of the people, from the influence of which escape is not easy.[1]

### Volume of Exchanges

51. The demand for money tends to vary directly with the total volume of exchanges. If credit and the rapidity of circulation of money were constant quantities, always holding the same relation to the quantity of money, the demand for money would increase in exactly the same proportion as the volume of exchanges. But the two factors named are not constant, credit

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[1] The fact that credit money is almost exclusively used among the people in the United States does not affect the conclusions reached in this section. The more rapid the circulation of credit money, the smaller the quantity of it needed to mediate a given volume of exchanges.

in particular being subject to great changes. Changes, however, in the use of credit and in the rapidity of circulation have no causal relation to the volume of exchanges, and there is no reason for supposing that such changes tend to prevent an increase in the volume of exchanges from increasing the demand for money. The proportion of credit transactions to money transactions may, on account of changes in confidence, vary widely within short periods of time, but in the long run that proportion depends on custom and on the existence of such credit facilities as banks and clearing houses. In any given country year after year the relative importance of credit as a medium of exchange may gradually increase, but it cannot be assumed that such increase is sufficient to handle the yearly additions to the volume of exchanges, due to the increase in wealth and population.

Experience, indeed, has repeatedly demonstrated that changes in the use of credit and in the rapidity of circulation do not keep the value of money from being affected by an increase in the volume of exchanges. Between 1810 and 1850 the purchasing power of money (gold and silver) rose all over the world, the large increase in the world's business during this period having been accompanied by very small additions to the world's supply of gold and silver. The same thing happened between 1873 and 1897, during which period, despite an increase in the world's stock of gold, prices in gold-standard countries fell some 50 per cent, marking an increase of nearly 100 per cent in the value of gold. We may conclude, therefore, that as the volume of exchanges increases, the demand for money tends to increase, although not necessarily in the same proportion.

The volume of exchanges in any country depends on the number of people, on their productive capacity, on the organization of business, and on the extent to which the division of labor has been carried. The demand for money, therefore, tends to vary whenever changes take place in any of these factors.

If there were no changes in the habits of the people from generation to generation, if the sons carried on business exactly as their fathers did before them, producing the same amount of wealth per capita, making payments in the same way and always keeping at hand about the same amount of currency, then we might say that the demand for money increases *pari passu* with the population. Ignorant of the various conditions upon which the demand for money depends, people often assume that the value of money would be stable if only the supply were increased at the same rate as the population. Certain politicians in the United States have recommended legislation intended to bring about an artificial regulation of the money supply on this basis. This view of the subject overlooks other factors in the demand for money quite as important as population, and is therefore crude and unscientific. Changes in population calling for an increase in money may be offset by changes in other factors tending to lessen the demand for money. The so-called "per capita test" of the money supply is therefore quite worthless.

The demand for money tends to vary with the production of wealth. In a community which produces very few goods the total volume of exchanges cannot be large, and in such a community the need for money will be comparatively small. It is evident that if the productive power of that community is doubled, each man will have a larger quantity of goods to sell, the volume of exchanges will be increased, and the need for a medium of exchange will be enlarged. At present our industrial society is so organized that practically all goods are made to be sold. They are sold for money or for credit. It follows that the need for a medium of exchange must increase as the quantity of goods produced and exchanged increases.

We cannot assume, however, that the quantity of wealth produced in the country is by itself an accurate index of the amount of money needed to maintain a stable level of prices. Even if we assume that no modifications are taking place in the machinery of exchange, and that year after year, on the average, goods are bought and sold the same number of times before they reach the final consumer, yet it would not follow that the demand for money would increase equally with the production of wealth. As production enlarges there is an increase in the quantity of goods exchanged and in the average size of each transaction. The increase in the magnitude of transactions naturally leads to a larger use of credit, for, as already shown, the most useful sphere of credit is in the field of large exchanges. The expansion of credit makes it possible for the community to effect the larger volume of exchanges without any corresponding increase in the supply of money. The production of wealth is only one factor in the demand for money. It is important, but it must always be considered in connection with that other important factor, credit.

Improvements in business organization which reduce the number of times a good is bought and sold in its journey from producer to final consumer reduce the total volume of exchanges and so tend to lessen the need for money. Such improvements are constantly taking place. During the last twenty years of the nineteenth century, a period marked by the consolidation of small business enterprises into large corporations, many middlemen were dispensed with. Business changes of this sort, greatly reducing the number of exchanges made in marketing goods, naturally lessen the demand for a medium of exchange, and must be taken into account when the relation of the value of money to the production of wealth is under consideration.

On the other hand, the increasing division of labor, which is a feature of modern industrial evolution, has a tendency to increase the need for a medium of exchange. Men in middle life recall the time when labor was employed in ways very different from those in which it is now employed, for the last twenty-five years have been remarkable for the improvements made in the application of labor to the production of goods. Adam Smith doubtless felt that the limit had been reached when he described the manufacture of pins and showed how it involved one hundred and sixty different processes and gave employment to one hundred and sixty sets of workers. But since his day, on account of the great variety of mechanical appliances that have been invented, the division of labor has been applied to numerous articles of commerce, so that at the present time it is difficult to name any commodity which is the product of a single worker. The shoemaker buys the shoes he wears, the watchmaker the watch he carries. The blacksmith, whose father made his own nails and horseshoes, now finds it more economical to buy these and all the rest of his equipment. Fifty years ago it was the ambition of many a farmer to raise upon his own farm all that he and his family consumed; his fields and his stock furnished him with food; the wool on his sheep was made into clothing by the spinning wheel and weaving frame in his house. Now the farmer, especially in western Europe and the United States, concentrates his energies upon a few crops, and gets by exchange most of those comforts and necessaries of life which his father used to produce. Such industrial modifications evidently tend to increase the need for money, for they increase the number of exchanges that accompany a given production of wealth.[1]

52. We have now finished our analysis of the factors influencing the demand for money, and have found that in order to account for changes in the value of money from causes affecting the demand we must consider the way in which goods are produced and marketed, the growth of population, the production of wealth, the use of credit, and the rapidity of money's circulation. The reader may well ask, How out of this maze of conflicting forces can one select those which at any given time are predominant? And the manifest impossibility of the task may lead him to the conclusion that the value of money is more difficult of comprehension and explanation than the values of goods in general. Such a conclusion would be an error. The values of all goods depend upon demand and supply, and there is none for which the human demand is not subject to a bewildering variety of influences. The demand for money is not peculiar in this respect, nor are changes in the value of money more difficult to explain or forecast than are changes in the values of other commodities.

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[1] In David A. Wells' *Recent Economic Changes* the reader will find many interesting illustrations of the point made in this paragraph.

The reader must not suppose that the purpose of our analysis has been to discover what is the value of money. That we always know, for it is revealed by the prices at which goods sell. Leaving the advantages of correct theory aside, there are two practical advantages to be derived from a clear conception of the nature of the demand for money. In the first place, business men, whose paramount interest is the prices of goods, are certain to make costly blunders in their forecast of price changes unless they inquire into the forces acting upon the value of money as carefully as they do into those which affect the values of particular goods. In the second place, our analysis of the factors affecting the demand for money proves that these are so potent and varied that it is not wise to attempt, as has sometimes been attempted in the past, to regulate the value of money by some simple legislative device aiming at artificial interference with the demand or arbitrary control of the supply.

## Supply of Money

53. The conditions governing the supply of money are much simpler than those governing the demand. When a commodity like gold or silver is used as money, free coinage being permitted, the supply in the long run depends on the cost of production. The supply of fiat money depends on the will of the government issuing it.

When gold (or silver, or any other commodity) is freely used as money, the supply of money in a country is automatically regulated in such a manner as to keep the value of gold practically the same in all countries of the world. This automatic regulation of the supply is one of the chief advantages of commodity money. It is effected through the medium of price. When a country using gold as money has a larger supply proportionate to its needs than other countries, the value of gold in that country falls below its level in other countries and the prices of goods there are correspondingly higher. Sales to foreigners decrease and purchases from foreigners increase until a balance of indebtedness is created which compels an exportation of gold in settlement. The loss of gold, by reducing the supply of money, raises the value of money and lowers the level of prices in the country losing it, while tending to raise prices in the countries to which it has gone. By this simple process, gold always seeking those markets where its purchasing power is greatest, the supply of money in those countries using gold as money is automatically adjusted so that its value in all tends to be the same. A country is said to have "too much money" when its prices are above the level of prices in other gold-standard countries, and "too little money" when its price level is below that of other countries; for in the one case gold buys less in that country than elsewhere, and in the other case more. In either case, by the export or import of gold, a readjustment is effected without conscious effort on the part of men. What is said here of gold applies with equal truth to silver in all countries where it is freely coined into money.[1]

This automatic regulation of the supply of metal money, it should be observed, determines only the relative money supply of a country, and not the absolute supply; it determines the share of money which each country shall have, but has no control over the total quantity to be distributed among the various countries of the earth. This is determined by a law also automatic and equally effective in the long run, but less certain of instant application and less easy of comprehension. It is the law of cost, and applies to all commodities, including gold and silver, in precisely the same way. Briefly stated this law is as follows: *The supply of a commodity produced under conditions of free competition is so regulated that its value in the long run coincides with the cost of producing it under the most unfavorable conditions.* Capital and labor gravitate toward those industries which yield highest profits. If any commodity is selling at a price yielding extraordinary profits, additional capital and labor are attracted to that industry, the supply is increased, and the value forced down. On the other hand, if for any reason the value of an article falls below its cost, producers curtail production, the supply is reduced, and the value rises.

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[1] The international movements of the precious metals are explained more fully in Chapter V.

The truth of the law of cost in the case of most commodities, especially those produced under well-known conditions, is so clear and well established among business men that it needs no demonstration or illustration. Its application to a metal like gold, however, is not perfectly evident and is not generally understood. Nevertheless the value of gold, like that of any other good, tends to correspond with the cost of production, and the only check upon any large increase in the supply of gold — and consequent fall in its value — is the difficulty or cost attending its production. A rise in the value of gold causes an increase in the profits of gold mining, and men make greater and greater efforts to produce gold. On account of the uncertainties of gold mining these efforts are not always immediately rewarded, but the history of gold production in the past shows that sooner or later a rise in the value of the metal has been followed by a steady increase in the world's annual output, and that a fall in the value of gold, since it lessened the miner's compensation, has caused the abandonment of the poorest mines and so reduced the output. So the world's stock of gold available for monetary use tends to increase more rapidly when the value of gold is rising than when it is falling. These changes in the supply of gold tend to keep it at a value which will yield the gold miner only the average rate of profit.[1]

54. The supply of fiat money is regulated arbitrarily by the government, and its advocates hold that its value may therefore be kept stable at any desired level, so that the prices of goods need never be affected by changes in the value of money. The world's experience with fiat money and various plans recently urged for adoption are described in Chapter XI.

In conclusion, let the reader bear in mind the important distinction between the supply of money utility, or value, and the supply of money units. The supply of money value cannot be affected by any arbitrary act of men, and is independent of the supply of money units, for it is the product of the demand or need for money utility, and is always sufficient to satisfy that demand. If money were the only medium of exchange employed, there being no form of credit in use, the value of each money unit would vary, other conditions remaining the same, exactly in proportion as the supply of money varied, for the value of the whole supply would always just equal the need for money utility. But in a country employing credit as a medium of exchange the effect of an alteration in the supply of money cannot be foreseen, for no one can know how much it will affect the demand through causing a contraction or expansion of credit.

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[1] The peculiar conditions governing the production and value of the precious metals are discussed in Chapter X.

## LITERATURE

MILL, *Political Economy*, Book III, chaps. viii, ix, xi, xii, and xxi; WALKER, *Money*, Part I, chaps. iii and iv; KINLEY, *Money*, chaps. viii and ix; THORNTON, *Paper Credit*, chap. iii; DAVID A. WELLS, *Recent Economic Changes*, *passim*.

# CHAPTER V

## DOMESTIC AND FOREIGN EXCHANGE

55. The mechanism by means of which payments are made between communities within the same country. 56. Reasons why New York exchange is everywhere acceptable in business circles. 57. Conditions which lead to shipments of currency, and the limits between which the "price" of New York exchange may fluctuate.[1] 58. In the long run the supply of New York exchange in any given community is about equal to the demand. The seasonal movement of currency. 59. How changes in the rate of interest and in prices maintain an equilibrium between the demand for New York exchange and its supply. 60. International exchanges are governed by the same principles as domestic exchanges. 61. London exchange as acceptable throughout the world as New York exchange is within the United States. 62. The origin of sterling bills. Sight exchange, short bills, long bills, cables. 63. The par of exchange and the significance of rising and falling rates. 64. The cost of gold shipments. The gold points. 65. The supply of and demand for sterling exchange is due to a country's visible and invisible trade. 66. The invisible trade in securities and other forms of debt as important as the trade in goods. The operations of arbitrage houses. 67. How investments affect the rates for foreign exchange. Bank balances. 68. Miscellaneous items. Foreign travel and ocean freights. 69. Gold movements are the result not of the so-called balance of trade but of a balance of indebtedness created by international differences in prices and the rate of interest.

55. Before the reader can intelligently take up the consideration of the practical problems involved in the use of money as a medium of exchange it is necessary that he have some idea of the way payments are effected between different communities and between different countries.

Payments between different communities of the same country may be effected by the shipment of currency or by the use of credit. In the United States some form of credit is usually employed, shipments of currency being made only when the people of a community as a result of their business transactions are called upon to make payments to outsiders in excess of the payments due to them. Every bank in the United States has funds on deposit in one or more banks in other communities, and thus is able to sell to its customers drafts calling for the payment of money in other cities. Every bank in the United States can sell a draft on New York or even on London. All country banks do not maintain deposit accounts in New York City, but have deposit accounts with banks in near-by large cities, and these have balances in New York upon which their country correspondents are permitted to draw.

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[1] The figures showing the various costs in connection with shipments of currency between New York City and other cities on pages 81, 82, 88, 89, 90, and 91 are pre-war figures. Naturally during the war the cost of insurance and freight to foreign countries was very high, but these figures will very likely return soon to normal. See Chapter XVII for a further discussion of domestic and foreign exchange as they are affected by the operation of the federal reserve system.

For example, a bank in Barre, Massachusetts, need maintain no deposit account in New York in order to sell a draft on New York, a credit balance in some Boston bank being all that is necessary. When one of its customers desires a draft on New York the Barre bank may issue it to him upon a blank furnished by its Boston correspondent. The Barre bank immediately notifies the Boston bank of the transaction. The latter debits the Barre bank with the face of the draft, and advises its New York correspondent that such a draft has been drawn at Barre; and the New York bank, when it honors or pays the draft, debits its face to the Boston bank. In this simple way the banks of the country are all linked together. Small banks in the neighborhood of New Orleans, for example, sell exchange upon New York through their relations with the New Orleans banks. In the same way small banks in the neighborhood of St. Paul have power to sell exchange upon New York or upon Chicago through their relations with the banks of St. Paul. Thus the country is made up of small financial circles and centers, all included within a great circle of which New York is the grand center.

56. The medium most employed for the payment of debts between different communities is New York exchange. By this is meant a draft, check, or other credit instrument payable in New York City. The acceptability of New York exchange throughout the country is due primarily to the fact that New

York is the commercial center of the country. Tradesmen everywhere have dealings with New York City. There is not a store in the country which does not receive either directly or indirectly certain of its supplies from that city. The greater portion of the surplus products of the country each year passes through the port of New York on its way to Europe. The manufacturers of New York are the largest customers of the producers of raw material.

Thus it happens that every part of the country contains men who are selling goods to New York, and also men who are buying goods from there. If all payments were made with money, the one class would be receiving sums of money from New York, while the other class would be shipping sums of money to New York. By the use of credit the shipment of money is almost entirely dispensed with. When a southern cotton factor, for example, ships cotton to New York he may receive payment in a check on a New York bank. This he deposits in his local bank, receiving credit therefor as if he had deposited money. On the other hand, when a southern merchant receives goods from New York he buys from his local bank a draft on that city and with it satisfies the claim of his New York creditor. In neither case is the shipment of money or currency necessary.

How the local banks get their power to sell drafts on New York can best be shown by a concrete illustration. We will suppose that a bank in Aurora, Illinois, has on deposit $10,000 with the First National of Chicago. Let us suppose that an Aurora manufacturer has sold stoves to an eastern dealer and has received in payment a check for $1000 on the Corn Exchange bank of New York. He will deposit this check in his Aurora bank, which will send it to its Chicago correspondent, and thereby increase its credit balance to $11,000. The Chicago bank will send the check to its correspondent in New York, and so increase its credit balance in New York by $1000. By an arrangement with the First National of Chicago the Aurora bank is able to sell drafts on the Corn Exchange of New York, using for the purpose blank drafts furnished by the

First National. It is quite possible that on the same day a merchant in Aurora, who has bought goods from New York, will call upon the Aurora bank for a draft on New York. He may not want a draft for exactly $1000, but that does not matter. The Aurora bank is able to sell to him a draft for any amount up to $11,000, for its credit balance in the Chicago bank gives it a right to "draw" upon New York for that amount. Thus, on account of New York's trade relations with all parts of the country, banks everywhere are usually able to sell drafts on that city without being compelled to ship currency.

New York exchange is used not only for payments between New York and other parts of the country but also for payments between points in the United States outside of New York. A man living in Buffalo who owes $1000 to a man in New Orleans can best pay the debt by remitting a draft on New York City. This method is the one usually employed, for Buffalo banks maintain no balances in New Orleans, and so cannot sell drafts on that city. They can, however, sell a draft on New York, and that will usually be accepted by New Orleans banks at par. When the reader takes into account that New York checks and drafts are every day being used in this way for the cancellation of debts in all parts of the United States, he will understand why New York exchange is deservedly called "the business man's money."

## Causes of Currency Shipments

57. But does not a bank sometimes receive a call for more New York exchange than it can conveniently sell? This does frequently happen, and as a result bankers are sometimes forced to charge a small premium for New York exchange. The price which they can charge is definitely fixed by the cost of shipping currency. This cost depends upon three items: first, the express charge; second, insurance; third, the loss of interest. As a rule, the first two charges are linked together in a charge made by the express company, on account of its guaranty to deliver the currency to the consignee. The third item of cost

varies with the rate of interest. The moment a bank gives money to an express company for shipment to New York City, the bank's power to use it as a reserve, or basis for loans, has gone. That money cannot again become the basis for banking transactions until it has reached New York. The amount of this item is high or low according to the rate of interest at the point from which the shipment is made. These three items amount to about 50 cents per $1000 on a shipment of currency between New York City and Chicago. Hence Chicago bankers are not able to charge more than 50 cents premium on a New York draft for $1000. A man who wishes to send $1000 to New York will not pay a bank over $1000.50 for a draft, for at that price he can ship the currency by express.

The shipment of currency from one point to another and the fixing of the rate of exchange are matters attended to by the banks themselves. No private business man — excepting perhaps a few whose transactions foot up large totals — ever thinks of shipping currency from one point to another. If the people of a western city have been buying from the East more largely than they have sold to it, so that their calls upon the local banks for New York exchange exceed the incoming supply, the banks themselves are forced to ship currency to New York in order to cover their sales of exchange. In the large cities the banks make a business of buying and selling exchange from one another. When the First National of Chicago, for example, finds that its New York balance is running low on account of the demand by its customers for New York drafts, it endeavors to buy exchange from other banks in Chicago, and will pay them a premium for it. In no case, however, will it pay more than 50 cents per $1000. The sellers will be banks which find that they have on hand more exchange on New York than they have need for, and they will ask for this exchange as high a premium under 50 cents per $1000 as they can obtain. The height of the premium is fixed by competition between buying and selling banks. Sometimes the supply of New York exchange will be so great that it will be sold by one bank to another at a discount. If a bank having a large credit in New York City orders currency shipped to it, the expense on each thousand dollars will be 50 cents. The bank can better afford to sell drafts on New York to its neighbors at a discount of 40 cents per $1000 than order the shipment made.[1]

58. In the long run the supply of New York exchange in any community is about equal to the demand for it. This is another way of saying that each community in the long run sells to other communities as much as it buys from them. In certain seasons of the year, however, agricultural districts buy much more from the East than they sell to it. This is always the case in the winter and spring. No crops are then being harvested, yet merchants all over the country are laying in their stock of spring and summer goods. As a result there is so strong a demand throughout the country for drafts on New York that country banks are generally obliged to make some shipment of currency to New York in order to cover the drafts they sell. The opposite condition prevails in the fall when the crops are marketed and are going forward for export. Then the farmers of the West and planters of the South are receiving in payment for their goods eastern checks, which they deposit in local banks. Country banks now find their balances piling up in New York and are unable to sell New York exchange as fast as they would like. As a result New York City banks are usually ordered in the fall to make shipments of cash to the West. In

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[1] The cost of a currency shipment to or from New York always falls upon the country bank, for it is always upon their order and for their convenience that shipments are made. Following are the express rates per $1000 charged in 1905 on currency shipments between New York and four leading cities: Chicago, 50 cents; St. Louis, 60 cents; New Orleans, 75 cents; San Francisco, $1.50. Banks sometimes ship currency by registered mail. This method is a little cheaper than shipment by express, but is less expeditious, it being necessary to negotiate with an insurance company after the package has been registered. The Treasury Department frequently saved banks from the necessity of currency shipments; thus a bank depositing $1,000,000 in the subtreasury at New York would receive an order for that amount payable at the subtreasury in San Francisco. Many of the large houses in Chicago carry accounts in New York banks, and some of them compete with Chicago banks in the purchase and sale of New York exchange. In Chicago and some of the other inland cities there are so-called exchange brokers whose chief business is the buying and selling of New York exchange on commission.

the winter and spring, when the West is a heavy buyer from the East, New York exchange is usually quoted at a premium in western cities. In the autumn it is usually at a discount, all banks having an excessive supply.

There is another reason for this seasonal movement of currency between New York and the country districts. In the autumn, when the crops are harvested, there is a great increase throughout the West and the South in the need for "hand-to-hand money." This must be furnished by the country banks, and they are forced to draw on their New York balances, first by sales of New York exchange and finally by ordering the cash shipped to them. In the winter and spring cash flows back into the country banks, until they have more than they can profitably use. Then they build up their New York balances either by buying and remitting exchange or by shipping currency.

59. What is to prevent a community from sometimes buying much more from New York than it sells to that city? Indeed, is not any community always in danger of purchasing so much from other parts of the country that its bankers may be obliged to send out all their supply of currency in order to make the payments? This brings up the question of the balance of trade between communities. The balance of trade is usually discussed by economists only in relation to trade between different countries, yet the principles governing such trade differ in no respect from those governing trade between communities within the same country.

There is never any danger that a community will be stripped of its money or cash as a result of its purchases of goods from other communities. No matter how freely Chicago and the country tributary to it may purchase goods from the East, those purchases can never make any serious drain upon the cash supply of Chicago. No matter how extravagant the people of the West may be, their purchases of eastern goods can never be greatly in excess of their sales to eastern consumers. Should the people of Chicago for extraordinary reasons at any time increase their purchases from New York and other eastern cities, the first effect in Chicago would be an increase in the demand for New York exchange and in bank shipments of currency from Chicago to New York. The loss of currency in Chicago, since it would reduce the lending power of Chicago banks, would tend to cause a rise in the rate of interest and a rise in the value of money. The prices of commodities named would begin to decline; not of all commodities, but of those which are subjects of speculation, such as stocks, wheat, corn, and pork. Most of the speculators in these articles are borrowers, and the interest they pay is an important item in the expenses of their business, so that when the interest rate rises they are obliged to contract their operations. Chicago would thus become a good place to lend in and also a good place in which to buy stocks and bonds, wheat, and other speculative commodities. In other words, the value of money would rise in Chicago, and people in other parts of the country would increase their purchases in Chicago markets, remitting New York exchange in payment. The reader must not suppose that these changes in price or in the rate of interest need be so great as to attract general attention. Nevertheless it cannot be doubted that such changes do take place, and that as a result the sales of Chicago to other parts of the country are so adjusted that in the long run they furnish a supply of New York exchange equal to the demand.

Thus it happens throughout the country that in the course of a year the debts of every community are always practically balanced by its credits on account of sales, so that large shipments of currency are never necessary. Indeed, if our monetary and banking systems were perfect, no shipment of currency from one part of the country to another would ever occur as a necessary result of trade transactions. Money or currency would only be shipped to a community as a result of an increasing need for it as a medium of exchange or as a basis for the expansion of bank credits. In Canada, for example, on account of the elasticity of its bank-note circulation, seasonal variations in the demand for currency are easily provided for by the local banks and their branches.

## INTERNATIONAL PAYMENTS

60. The principles governing international payments and the flow of gold between nations are the same as those governing payments between communities of the same country. To a man who has given no thought to the subject, what is known as the "balance of trade" appears to be the cause of gold shipments. He may well wonder how this balance of trade never happens to be large enough to exhaust a country's gold supply. Horace Greeley frequently warned Americans against the purchase of European articles lest they be impoverished and all their money sent abroad. A little examination of the subject will show that a country's gold supply can never be in danger of serious depletion, no matter how extravagantly fond its people may be of articles bearing a foreign trade-mark.

As was said in Chapter II, when a country is using gold as money and admitting it freely to the mints for coinage, the value of gold determines the value and purchasing power of money. Gold is really the money of the country; the coins are merely convenient pieces of the metal so stamped that no one has any doubt as to the quantity of gold they contain. A man who owes $1000 in the United States owes 1000 times 23.22 grains of pure gold. In England the sovereign contains about 113 grains of pure gold, or 4.8665 times as much gold as the American dollar; so a sovereign is equal to $4.8665. This equality in the relation between the weights of pure metal in the coins of different countries is known as the "mint par" or "par of exchange." The mint par between the English sovereign and the American dollar is expressed by the equation £1 = $4.8665. If any person should take 1000 full-weight English sovereigns to the United States Mint, he could have them coined into $4866. He would still have the same amount of gold, only its form would be changed.[1]

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[1] The sovereign contains 123.27447 grains of English standard gold, which is eleven twelfths fine. It contains, therefore, 113.00157 grains of pure gold.

The franc, which is the French monetary unit, consists of 4.48025 grains of pure gold (4.97806 grains of standard gold, nine tenths fine). It is the equivalent of 19.3 cents United States money. The mint par between sovereigns and francs

61. With respect to the trade of the world London holds a position similar to that held by New York with respect to the trade of the United States. England's insular position and the character of her resources early led her people to seek the profits of manufacture and to explore the earth in search of raw material for her factories and of markets for her products. Every country on the globe trades with London, just as all parts of the United States trade with New York. In the same way that a draft upon New York has become the business man's medium of exchange in the United States, so has a draft upon London become the medium of exchange between different countries. Banks all over the world find it advantageous to have credit balances in London banks, for their customers are constantly calling for London exchange. These balances are not built up by the shipment of gold, but by the remittance of checks and drafts which banks receive from their customers who have shipped goods to London.

62. Drafts on London frequently originate in commercial transactions in which London is not concerned. A New York importer of coffee from South America is quite as likely to send in payment a draft on London as to send a check on New York. Sometimes, indeed, as will appear later, it will be to his advantage to send a draft on London. So an exporter of tea in

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is £1 = 25.22 francs. The franc is divided into 100 centimes. The French law provides that one kilogram of standard gold shall be coined into 3100 francs, of which the government retains $7\frac{4}{9}$ as a seigniorage tax.

The monetary unit of Germany is the mark of 6.14757 grains of standard gold nine tenths fine, or 5.53113 grains of pure gold. One kilogram of fine gold is coined into 2790 marks ; seigniorage 14 marks. A sovereign equals 20.43 marks. The mark is divided into 100 pfennige. The smallest gold coin is the five-mark piece.

In New York exchange quotations are usually given on the following basis.

£1 = $4.8665
4 marks = $.952
$1 = 5.18 francs

Throughout this chapter, which is concerned with principles rather than with details, I assume that all international payments are made with sterling exchange. I do this in order that the reader may not be confused with unnecessary complications. Much use is made of exchange on Paris and Berlin, but the principles governing continental exchange are not different from those governing sterling.

China, even though his tea has been shipped to Paris, may be paid by a draft on London instead of by a draft on Paris, and may prefer payment in such form. In fact, a draft on London may be used for the payment of a debt in any part of the world, and will be as welcome as is a New York check in any part of the United States. For this reason London exchange, or "sterling exchange" as it is commonly called, comes nearest to being what might be called the world's credit money. Among business men everywhere it is the most acceptable and common medium of exchange in the settlement of large transactions.

The custom of the business world has given rise to what is called a "sterling bill of exchange." A London importer seldom sends a check in payment for the goods he receives. Instead he allows himself to be "drawn on" by the exporter in the foreign country. The exporter writes a draft upon the London importer for the amount in question, attaches to this draft the bill of lading and other evidences of the shipment, and sells it to his local bank for the money of his country. The local bank then forwards the draft to its correspondent bank in London. If it is a sight draft, the London bank at once presents it to the drawee for payment; if a time draft, the London bank presents it to the drawee "for acceptance," whereupon the drawee writes "accepted" and his signature upon its face. After the draft has been accepted it becomes legally a promissory note or bill payable, and may be discounted and passed through several hands before it falls due.

Bills payable on demand are known as "sight exchange"; bills payable within ten days are called "short bills"; those running for longer periods, "long bills." Drafts upon London originating in a business transaction in the manner above described are known as "commercial bills" and seldom run over ninety days. When a banker in a foreign country makes a draft upon a London bank such a bill is known as a banker's draft, or a banker's bill. "Cable exchange" is a name given in New York to drafts upon London sold by banks and paid the same day in London in compliance with a cablegram. Such bills, of course, cost more than the ordinary sight bill by at least the cost of the cablegram. A long bill sells for less than a sight bill on account of the deduction of interest. A sixty-day sterling bill for £1000 is an order for the payment of £1000 in London sixty days hence. In a community where the prevailing rate of interest is 6 per cent such a bill would naturally sell for 1 per cent less than £1000. The custom of drawing ten-day bills owes its origin to the length of the voyage across the Atlantic, the intention being that such a bill shall reach London at maturity.

## The Par of Exchange

63. If the trade between New York and other parts of the world were all settled with sterling bills or bankers' drafts on London, and if our imports were always exactly equal to our exports, sterling bills of exchange would always be at par in New York City. By this is meant that bankers would at all times be able to sell an order for a sovereign in London for \$4.86⅔. They might charge a fraction more in order to give them a profit, but they could afford to sell sight sterling at par, for the supply of sterling bills deposited with them by New York exporters would just equal the demand for sterling on the part of the importer. The New York bankers, by sending the sterling bills to London, would create credit balances to cover all the drafts sold by them, and so would not be obliged to send any gold.

Such a condition, however, seldom exists. In some seasons of the year the United States (and what is said of the United States applies with equal truth to any other country) is importing largely in excess of its exports; in other seasons its exports are in excess. When the United States is importing more than it exports, the demand in this country for drafts on London runs ahead of the supply in the hands of bankers and they ask more than par for them. A shipment of gold to London costs about two cents per sovereign. Hence any man who has a debt due in London can afford to pay a banker a premium of two cents for a sight draft; in other words, he can afford to pay a banker $4.88 for a draft rather than ship gold. The price of sight sterling may rise even to $4.886 before debtors in the United States find it advantageous to ship the gold itself to London.

On the other hand, when bankers buy more sterling than is wanted by importers, it is evident that their credit balances in London are increasing. Bankers usually desire to have their funds at home and not in foreign cities, but as it costs two cents per sovereign to import gold, they can better afford to sell drafts on London at less than par. Under such circumstances, therefore, bankers, as a result of competition among themselves, sometimes lower the price of sight sterling to $4.846.

Thus the price of a draft on London is constantly fluctuating as the trade between this country and other parts of the world varies, or as the relation between the demand for and supply of sterling exchange is altered. When the price of sterling exchange is rising we know either that our purchases abroad are increasing or that our sales to foreigners are decreasing, and that thus the relation between the demand for and supply of sterling is altered. When the price of sterling is declining we know either that our sales to foreigners are increasing or that our purchases from foreign countries are decreasing, and that thus the demand for sterling in proportion to the supply is declining.

64. The expense in the case of the shipment of gold from one country to another, as in the case of the shipment of currency from one city to another in the United States, is made up of three items: the freight charge, the insurance, and the loss of interest. The first two items are relatively free from fluctuation, although they may fluctuate widely during war time. The loss on account of interest depends, of course, upon the current rate. When the rate of interest is 2 per cent in New York City the cost to a banker on a shipment of gold to London is obviously less than when the rate is 5 per cent. In the same way, when the rate of interest is high in London the cost of a

gold shipment from London is greater than when it is low. The cost, however, does not necessarily fall upon the banker who makes the shipment. It is borne by the banker on whose order it is made.[1]

It is evident that the price of sight sterling cannot fall below a point in New York City at which it is profitable to export gold. If the supply of sterling bills is so large in New York that bankers are forced to offer them for less than $4.846, it soon becomes profitable for some house to buy sterling at this rate and at the same time order gold shipped from London. If a banking house can buy sterling at $4.843 and import gold from London at an expense of only two cents on the sovereign, it makes a small percentage of profit by the transaction; if the importation amounts to a million dollars, the profit would be

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[1] During the last quarter of the nineteenth century the cost of shipping gold from New York to London fell from three to two cents per pound sterling. The charges for freight and insurance both declined, while the increased speed of transatlantic liners reduced the loss on account of interest.

The following figures, showing the cost of shipping $1,000,000 in gold from New York to London, were furnished by the representative of one of the largest New York banking houses.

| | |
|---|---|
| Invested in fine bars, 23,200,000 gr. (48,375 oz.) | $1,000,000.00 |
| Assay office premium on bars, 4¢ per $100 | 400.00 |
| Freight, $\frac{5}{32}$ per cent | 1,562.50 |
| Insurance, $\frac{1}{16}$ per cent | 625.00 |
| Packing and cartage | 70.00 |
| Total outlay | $1,002,657.50 |

The Bank of England's "price" of gold varies from 77s. 9½d. to 77s. 10½d. per ounce, English standard, 916⅔ fine. The mint coins an ounce of gold, English standard, into 77s. 10½d.; but the Bank of England, with which it is the custom of bullion owners to deal, usually pays a fraction less than this sum, thus saving itself from loss of interest while the bullion is being coined. It is assumed below that the bank pays 77s. 10d. per ounce.

48,375 oz. fine = 52,772.7 oz., 916⅔ fine.

| | |
|---|---|
| 52,772.7 oz. @ 77s. 10d. | £205,374 |
| Deduct sundry expenses | 4 |
| Net receipts in London | £205,370 |
| Cost of sovereign (1,002,657.50 ÷ 205,370) | $4.8822 |
| Mint par in United States | 4.8665 |
| Cost of shipment per sovereign | $.0157 |

The reader will notice that no loss on account of interest is included in the foregoing. The New York banker who furnished the figures held that no such about $700. On the other hand, if the demand for sterling is largely in excess of the supply, bankers are able to sell drafts on London for more than par; but should the price rise above $4.886, it would soon become profitable for some banker to sell sterling at the high rate and to export gold to London to cover his drafts. If a banker, for instance, can sell sterling for $4.8865 when it costs him only 1.8 cents per sovereign to export gold, he makes a profit of two mills on each sovereign (113 grains pure gold) exported.

That point in the price of sterling which makes the importation of gold profitable is called the "gold import point." The price at which the exportation of gold is profitable is called the "gold export point." These two prices are often referred to as the "gold points." The reader must bear in mind that they are not the same at different times, for they vary with the rate of interest.

## VISIBLE AND INVISIBLE ITEMS OF TRADE

65. The supply of and demand for sterling exchange in New York City is due to the visible and invisible foreign trade of this country. Our visible exports consist of merchandise, and

item was involved, for he sold sterling exchange as soon as he made a shipment, and so was never out of money in consequence. If we include interest for ten days at 3 per cent ($835.54), we raise the cost of the shipment to $.0197 per sovereign.

The Bank of England usually pays per ounce for American gold coin 77s. 5d., such coin being only 900 fine. As the Treasury Department charges a premium for gold bars, it would be cheaper to ship coin than bars, were not the coin likely to be underweight from abrasion. Bullion is taken by weight and disposed of by weight; but coin is taken by tale and disposed of in London by weight. The premium charged for gold bars is to a certain extent offset by the finer assay in England; the assay in the United States is on the basis of progressions of one fourth, while the assay in England is in decimals. Coin, being packed in bags, is liable to some loss from abrasion in transit. One of the largest New York shippers says he figures on a difference of $.30 per $1000 in favor of gold bars.

According to another large bullion dealer in New York, the cost of a shipment is even less than is shown above. He gives the items as follows: premium on bars, $.40 per $1000; freight, $\frac{1}{8}$ of 1 per cent; insurance, $.50 per $1000; cartage, $1 per keg of $50,000; packing, $1.50 per keg of $50,000. On the basis of these charges, allowing for ten days' interest at 3 per cent, the cost of a shipment of gold is $.0174 per sovereign.

include the products of our farms, forests, mines, and factories. As every vessel clearing from an American port must declare its cargo, we have a record of all our visible exports; and as all goods imported from foreigners are examined at our custom-houses, we have likewise a record of all our visible imports. Since fairly accurate records of these exports and imports of merchandise are published from time to time, they are quite commonly regarded by the people as being the sum total of our foreign trade and as being the main sources of the supply of and demand for foreign exchange. When the exports of a country exceed its imports the excess is commonly known as a "favorable balance of trade" and people usually expect an importation of gold to result. When the imports are larger than the exports the balance of trade is called "unfavorable" because it is supposed to lead naturally to an exportation of gold.

The expression "balance of trade" as used in this connection is not accurate, for it leaves out of account that part of our foreign trade which is invisible. There is, furthermore, no justification whatever for the use of the adjectives "favorable" and "unfavorable." The so-called balance of trade has practically no relation whatever to the prosperity or general welfare of a country. The idea that an excess of exports is desirable, in that it seems to point to an importation of gold, had its origin in a misconception of the true nature of national wealth. A country needs a certain amount of gold for use in the arts and as money, just as it needs a certain amount of wheat for use as food, or a certain amount of coal for use as fuel. It should import gold, just as it imports coal or wheat, only when there is need for an increase in the stock of the metal.

66. A country's invisible foreign trade is quite as important as its visible trade in its effect upon the price of sterling exchange. This invisible trade consists of the import and export of debts. For convenience we may divide this trade into three classes: first, the trade in stock-market securities; second, private investments of capital; and, third, bank investments. All of this invisible trade is related to the investment or

employment of capital and is based on some form of loan or credit. We will consider each class separately.

The sale of stock-market securities by New York to London gives rise to sterling exchange in exactly the same way as the sale of wheat. When an English investor buys the stock or bond of an American corporation, the New York seller draws on him, or on his broker, and sells the draft to a New York banker, thus increasing the supply of sterling exchange in New York and tending to lower its price. The opposite happens when an English broker sells securities to a New York purchaser. Then the New York buyer of the security must go to his bank and purchase a draft on London in order to make payment, so increasing the New York demand for sterling. Likewise, when an American buys from a Londoner the securities of an English company, or English consols, — the popular name of the English national debt, — he must enter the New York market as a buyer of sterling exchange. The demand for sterling is also frequently increased by the investments of Americans in the securities of foreign countries other than England, for payment for such securities is frequently made by drafts on London. A purchase of Russian bonds by an American is quite as likely to be paid for by a London draft as by a draft on St. Petersburg. So the demand for sterling exchange, and hence the price of sterling exchange, is constantly dependent upon the investments which Americans make in the securities of foreign countries.

A large part of the supply of sterling comes from a similar source, for whenever a foreigner in any part of the world buys an American security he is quite likely to remit in payment a draft upon London. Purchases by foreigners are usually made by brokers upon the floors of their own stock exchanges, and often do not result in any sale on the part of New York or in any transaction on the New York stock exchange. An English investor desiring to buy the stock of the Pennsylvania Railroad does not send an order to New York, but gives his order to a London broker. The London broker, as a rule, will endeavor to buy the stock upon the London exchange. But if no holder is willing to sell, he will be unable to buy unless he offers upon the floor of the London stock exchange a price that makes it profitable for some dealer to cable an order to New York for the purchase of the stock there.

In every large city there are houses which make a business of keeping close watch upon the stock markets of different countries in order that they may make a profit whenever they discover slight disparities between the prices of securities in two different markets. These are known as "arbitrage" houses. If the price offered for Pennsylvania Railroad stock on the London exchange is a fraction above the price at which it is selling in the New York stock market, arbitragers buy in New York and sell in London on the same day. Such a transaction is often completed within two minutes. Of course they cannot deliver the stock until it has arrived from New York, but if immediate delivery be demanded, they may borrow stock in London for the purpose and repay when their stock arrives from New York. These arbitragers make impossible any great differences in price in the stock markets of the world. Their transactions are enormous. If for any cause the London stock market is weak while the New York market remains strong, the operations of arbitrage houses result in a great movement of stocks from London to New York, increasing thereby the demand for sterling exchange in the latter city. On the other hand, if the New York market is depressed by some circumstance which does not affect the English or other foreign stock markets, a stream of securities pours across the Atlantic into Europe and a supply of sterling exchange in New York is thus created.

This automatic movement of securities toward the markets paying highest prices is the most sensitive part of our foreign trade and is the one which appears to have the greatest effect upon foreign exchange quotations. No public record can be kept of this movement and no accurate estimate can be made at any time of its volume. We only know that the rates of foreign exchange instantly respond to any changes in the conditions governing stock-market prices.

### Investments of Capital

67. The second class of our invisible foreign trade includes all those investments of capital which are not made through the purchase of securities upon the stock exchange. When an Englishman purchases a farm or a gold mine in the United States, or advances money to his sons who are managing a cattle ranch in Wyoming, he increases the supply of sterling exchange in this country. He does not send over English gold; he either sends a check on London or permits his American creditor to draw upon him. The result is the same in either case, — an increase of the power of American banks to sell drafts on London, and, consequently, a downward tendency in the price of sterling exchange. It is impossible to make any estimate of the amount of these investments from year to year. No attempt has ever been made to keep records of such operations, and it is doubtful if trustworthy statistics could be obtained even if every bank in the country engaged in the task. Such statistics could not be secured by the government without obnoxious inquiry into the private affairs of its citizens. Every American who is educating his son or daughter in Europe, or who invests in tramways in a European city or in a sawmill in Russia, is a buyer of foreign exchange, and usually of sterling exchange.

The third class of invisible trade consists of bankers' investments and is usually the result of fluctuations in the interest rate. If the rate in London is much lower than in New York, London bankers, wishing to take advantage of the higher rate in New York, authorize their New York correspondents to make drafts upon them, thus increasing the supply of sterling exchange in New York. When a New York bank is advised by a London correspondent to make a draft of £10,000, or in round numbers $50,000, and to invest the proceeds in the discount of good commercial paper in New York, the New York bank is obliged to sell this draft in order to get the funds for the purchase of commercial paper for its London correspondent. In 1897, when business was very dull in the United States, but had begun to revive in Europe, the interest rate in our large cities was lower than in Berlin and Paris, and as a result our bankers allowed their European balances to increase and really became investors of capital in Europe. The supply of sterling exchange on sale in this country was reduced by the amount which American bankers invested in Europe. As a rule bankers desire to employ their funds at home, yet whenever great advances occur in the rates of interest abroad, these bank operations take place and have an important effect upon the rates of exchange, and hence upon the importation and exportation of gold. If the American bankers in 1897 had not been tempted by the high rate of interest to increase their balances in Europe, but had endeavored to sell exchange in order to have available funds at home, importations of gold would have resulted.

68. There are a few miscellaneous items which must be classed with the invisible trade. The most important of these are the expenses of travelers and the freight charges paid to foreign shipowners. It is estimated that Americans spend between $75,000,000 and $100,000,000 a year in foreign travel. Before an American crosses the Atlantic he buys of his banker a draft or letter of credit, which entitles him to obtain money in London or some other European city. As a rule Americans buy London exchange; hence the result of American travel and residence abroad is to increase the demand for sterling exchange in New York City. This demand is somewhat offset by the supply of sterling brought by foreign tourists to this country. They bring with them drafts or letters of credit which they sell to American banks.

The item of freight on merchandise exported and imported amounts to a large sum and is paid to foreign shipowners, American vessels doing only a part of the transatlantic business. If an American imports or exports goods in an English vessel, the payment of the freight bill gives rise to a demand for sterling exchange. The American, indeed, may pay the bill by a check to the New York agent of the English steamship company, but the effect will be the same, for the agent in order to remit to London will be obliged to buy sterling.

### Gold Shipments and the Balance of Trade

69. The so-called balance of trade has very little relation to the international movements of gold. As has been shown, gold is exported from the United States when the price of a sterling bill rises to a premium of about two cents per sovereign. The increasing demand for sterling exchange, which causes such a rise, is as likely to be due to an increase of the invisible imports as to an increase of visible imports. Indeed, imports of merchandise may be declining at a time that imports of securities are increasing, and it is quite possible for a country to have apparently a "favorable" balance of trade and yet be obliged to export gold on account of large purchases by its people of securities that have been held by foreigners, or on account of the large expenditures of its people in foreign countries. The demand for exchange, as we have seen, comes from many different sources, and the supply of it is increased in different ways. At no time are we justified in saying that an increase in this or that item will result in a movement of gold.

When the United States imports gold we have evidence that the metal is worth more here than abroad. Gold, like any other commodity, is always seeking the place where it is worth the most. This truth is easily understood in the case of wheat, corn, or cotton, but is not so readily comprehended in the case of gold, because this metal is used as money and as such has no price. If the reader has understood the conditions creating the demand for and supply of foreign exchange, he will have no difficulty in seeing how these forces regulate a country's supply of gold strictly in accordance with its value.

The United States is one of the leading gold-producing countries of the world. Its annual output in 1921 was sufficient to coin over $50,000,000. In some years this amount of gold is more than the United States needs for use either in the arts or as money. How do we know when the United States is producing gold in excess of its needs? On this point there is only one source of information, namely, the statistics of our exports and imports of gold. Since it is convenient for bankers throughout the country to keep their surplus money in New York City, because of the interest paid there on deposits, the new gold produced in excess of the country's needs soon drifts into the reserves of the New York banks. Its first effect is to depress the interest rate in New York. Its second effect is an increase of loans to speculators in stocks and in produce, and a lifting of prices in the speculative markets. The low rate of interest in New York leads the bankers of London and other European cities to reduce their New York balances, and such action creates a demand for sterling exchange in New York, for the New York correspondents of the foreign houses, in order to remit to them, are obliged either to draw on their own London balances or to purchase sterling exchange in the open market. Furthermore New York bankers, on account of the low interest rate at home, are more inclined than formerly to increase their balances in Europe, and are, therefore, less willing to sell sterling exchange. This disposition on the part of New York banks tends to increase the demand for sterling exchange and to lessen the supply of it offered for sale. Thus the operations of bankers themselves tend to cause the price of sterling exchange to rise toward the gold-export point.

Another force, and perhaps a stronger one, is at work in the same direction. The higher prices for securities in New York set the machinery of the arbitrage houses in motion, for they are able to realize a slight profit by buying certain securities in London and selling them the same day in New York. These transactions result in an increased demand for sterling exchange in New York, for the arbitragers, in order to make payment for the securities which they purchase abroad, are obliged to buy sterling exchange.

These forces, increasing the demand for sterling and lessening the available supply, lift the price of sterling exchange to the gold-export point, and continue at work until the loss of gold by New York has brought its price level and interest rate to a parity with the price level and interest rate of other gold-standard countries.

Forces acting in the same manner bring about the importation of gold whenever it is worth more here than in other countries. In the autumn the demand for a common medium of exchange in the United States is often greatly increased by the harvest requirements of the West and South. New York is obliged to ship currency to the country banks, and these shipments frequently so contract the operations of the New York banks as to produce a fall in the prices of stocks and speculative commodities in New York City. New York bankers sell London exchange and reduce their London balances to the lowest possible point. The relatively low prices of stocks in New York lead to an increase of sales to foreigners, and so again the supply of foreign exchange is enlarged. This goes on until the supply of exchange is so far in excess of the demand that the quotations touch the gold-import point and shipments of gold are ordered from London.

The reader will notice that in both cases the movement of gold is the direct result of the differences in the price levels of Europe and America, which represent differences in the value of gold. He must not suppose that the disparity of prices is so great as to attract the attention of the average man. Indeed, the average man is not in a position to detect it, for prices in the United States are quoted in dollars and cents, whereas in Europe they are quoted in sovereigns, francs, marks, etc. Nevertheless the prices, whatever the names used, show exactly the purchasing power of gold in the different countries. The large importer, or the arbitrager dealing in stocks and bonds, has at his elbow tables of figures showing precisely the relation between American and European prices. When there is a slight advance in the American price of a good, without any corresponding advance in the European price, he at once knows what profit he can make by purchasing abroad and selling at home.

Variations in the rate of exchange are equivalent to changes in international price levels. A rise of sterling from $4.8465 to $4.8865 means a rise of almost 1 per cent in the cost to Americans of foreign goods, and it tends to lessen our imports just as would an actual rise in the prices of European goods. At the same time this rise of exchange from gold point to gold point is equivalent in foreign countries — or wherever sterling exchange is dealt in — to a fall of almost 1 per cent in the prices of all American goods, for the purchasing power of the sovereign in the United States rises from $4.8465 to $4.8865. Hence American exports are stimulated. A decline of exchange quotations, of course, produces opposite effects, encouraging imports into the United States and discouraging exports. When the money supply of the United States is relatively neither excessive nor deficient, the changes wrought in our foreign trade by the rise and fall of exchange quotations are usually sufficient to prevent any movement of gold. But if the money supply is excessive, so that prices of certain goods having an international market are above the price level in other countries, then our imports of goods and securities, despite the discouragement of rising exchange rates, continue in excess of our exports until an exportation of gold becomes profitable. On the other hand, if our money supply is relatively deficient, our exports will be stimulated until the large accumulations of sterling exchange force the price down to the gold-import point.

All these forces work automatically. No man engaged in the transactions imagines that he is doing anything to correct the monetary situation of the world or to cause an importation or exportation of gold. Although each person is seeking personal profit only, he inevitably contributes to the general result. Thus, as a result of the operations of men in different countries, each acting independently in his pursuit of profit, the rates of foreign exchange in each country are so adjusted that the value of gold in all tends to be the same, gold always moving from the country where prices are relatively high and toward the countries where prices are relatively low.[1]

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[1] The table on the following page, showing the account of the United States with the world for the year 1904, gives an idea of the principal operations affecting the market for foreign exchange. Only the first two items in each column are known; all the others are estimates based on imperfect knowledge of the facts. On account of the large sales of Cuban, Mexican, and Japanese bonds in the United States, I have assumed that this country bought from foreigners more securities than it sold them, the difference being $116,000,000. The totals of the securities bought and sold by Americans are doubtless wide of the mark, for there is no clew to the amounts of arbitrage transactions.

THE UNITED STATES IN ACCOUNT WITH THE WORLD (1904)

(In Millions of Dollars)

| EXPORTS<br>Which make the Supply of Foreign Exchange | Cr. | IMPORTS<br>Which cause the Demand for Foreign Exchange | Dr. |
|---|---|---|---|
| *Visible Exports* | | *Visible Imports* | |
| Merchandise | 1502 | Merchandise | 1062 |
| Gold | 121 | Gold | 85 |
| *Invisible Exports* | | *Invisible Imports* | |
| Stocks and bonds bought in the U. S. by foreigners (arbitrage included) | 500 | Stocks and bonds bought in foreign markets by Americans (arbitrage included) | 616 |
| Other investments by foreigners in the U. S. | 30 | Other investments by Americans in foreign countries | 20 |
| Interest and dividends on foreign securities owned by Americans | 15 | Interest and dividends on American securities owned by foreigners | 50 |
| Profits by Americans on investments in foreign countries | 10 | Profits by foreigners from other investments in the U. S. | 30 |
| Reduction of American bank balances abroad | — | Increase of American bank balances abroad | 5 |
| Increase of foreign bank balances in the U. S. | — | Reduction of foreign bank balances in the U. S. | 10 |
| Foreign tourists in the U. S. | 15 | American tourists abroad | 100 |
| Foreign embassies, consulates, etc., in the U. S. | 3 | Americans living abroad and drawing income from the U. S. | 65 |
| Ocean freights paid Americans by foreigners | — | American embassies, consulates, etc., abroad | 3 |
| *Extraordinary* | | Ocean freights paid by Americans to foreigners | 100 |
| Indemnities, subsidies from foreigners, or sales of public property to foreigners | — | *Extraordinary* | |
| | | Payment to foreigners on account of indemnities, subsidies, purchases of public property, etc. (Panama Canal) | 50 |
| Total export credits | 2196 | Total import debits | 2196 |

It thus appears that a country's balance of indebtedness is not determined by chance. If there were no international transactions in debts or securities, no movements of capital from country to country, — in short, no invisible trade between nations, — then the exports and imports of merchandise would balance except when an excess of gold in one country lifted the price level there and brought about an exportation of the yellow metal. The invisible elements in the foreign trade of nations complicate the subject, but introduce no new principles and lead to no new conclusion. The balance of trade, so far as visible goods are concerned, may be more or less fortuitous, depending upon the crops and upon variations in the productive capacity of a nation; but the whole foreign trade of a nation, by which is meant its imports and exports of goods and of debts, is subject to an immutable law. The exports of goods and debts always exactly equal the imports of goods and debts, except when a balance of indebtedness is created on one side or the other by differences in the value of gold in different countries. This balance of indebtedness, it should be noted, is not the real cause of gold exports or imports, but is itself the effect of conditions which render imperative a readjustment of the gold holdings of nations.

## LITERATURE

G. J. GOSCHEN, *The Theory of the Foreign Exchanges* (15th edition, London, 1892) is probably the best book in English on the subject, but it is not free from the notion that gold is shipped in settlement of a balance. PIERSON, *Principles of Economics*, Vol. I, contains an admirable discussion of the subject. Two books by GEORGE CLARE, *The A, B, C of the Foreign Exchanges* and *A Money-Market Primer*, explain the technique and practical details of exchange transactions very clearly from the English point of view. A. W. MARGRAFF'S *International Exchange* (Chicago, 1903) is intended to aid the untrained dealer in exchange and is full of forms, documents, and details. The beginner will get help from CLEVELAND'S *Funds and their Uses.*

# CHAPTER VI

## THE RELATION OF MONEY AND CREDIT TO PRICES

70. The index number as representative of the level of prices. The arithmetical mean, the geometric mean, the median, and the harmonic mean. 71. The uses and defects of index numbers. 72. A perfect index number would enable men to compare the changing values of goods during a period of time. 73. Index numbers prepared by Falkner, Sauerbeck, Soetbeer, Dun's *Review*, and the Department of Labor. 74. The price of a commodity dependent upon four circumstances. 75. How an increase of the money supply causes prices to rise. 76. The effect of an increase in the money supply upon the consumption of gold in the arts and upon foreign trade. 77. An illustration showing how a reduction of the money supply must affect prices. 78. Why an increase of population must tend to increase the demand for money and cause a decline of prices if the supply is unchanged. 79. Why lowered costs of production tend to increase the demand for money and to cause a fall in prices. 80. Examination of the common view that a fall of prices caused by lowered costs of production is really a fall of values, and does not indicate an appreciation of money. 81. This error due in part to a misconception of the nature of the demand for money. 82. It is due also to the confounding of real costs of production with money costs. 83. Why the use of credit of limited acceptability tends to lower the value of money. 84. An increase in the supply of credit money acts on prices very much as would the same amount of new money. 85. Prices do not change uniformly. 86. An illustration showing the effect upon prices of a sudden increase of the gold supply in the United States. 87. One of the results would be an expansion of credit, so that the rise of prices would be out of proportion to the increase of the money supply. 88. In the United States prices would be affected in the following order: stocks, speculative commodities, raw materials, wholesale prices, retail prices, loans, wages, customary prices. 89. A fall of general prices is also irregular, speculative commodities falling first. 90. The process of price readjustment is a gradual one. 91. Do prices rise in proportion to an increase of the money supply? 92. In countries using commodity money there is never perfect adjustment between prices and values. This maladjustment of prices often exerts a powerful influence on industry. 93. A brief sketch of changes in the price level caused by fluctuations in the output of precious metals during the last four hundred years.

70. In this chapter it is proposed, by illustration and by reference to historical instances, to show how and why variations in the demand for and supply of money affect the prices of goods. We shall see that the level of prices always tends to rise when the demand for money falls off or when the supply

is increased, and that prices tend downward whenever the demand is increased or the supply diminished. We shall also find that the prices of all articles do not change uniformly, but one after another, and in such irregular order as to interfere with the normal exchange values of goods and with the plans and profits of business men.

Before proceeding with this subject a brief discussion of the index number is necessary. The purchasing power or value of money varies inversely with the level of prices. In order, therefore, to ascertain whether the dollar is rising or falling in value, we must compare price levels. The index number is the instrument devised for this purpose. It is, as it were, the price of a composite commodity unit, representing approximately the average price of commodities in general. In its calculation several different methods are employed.

The simplest method gives the arithmetical average of the prices of a number of representative commodities. It may be found in the following manner. Suppose that sugar, wheat, pine lumber, cotton, and quinine are the commodities selected, and that we wish to ascertain how much the value of money has changed with respect to these during a certain year. Suppose that prices between January 1 and December 31 have changed as follows : Sugar risen from 5 cents to 5½ cents a pound, pine from $15 to $20 per thousand feet, cotton from 10 to 15 cents a pound; wheat fallen from 80 to 70 cents a bushel, and quinine from 30 to 25 cents an ounce. Here we have ounces, pounds, and square feet, — things we cannot reduce to a common material base. If we should simply add these prices and divide by five, the rise in the price of lumber, although not so great proportionally as the rise of cotton, would have a much greater effect on the result. In order to eliminate the effect of unit differences we must take of each commodity the same money's worth, and this we do by assuming that 100 cents' worth of each article is taken in the beginning, and by calculating what the price of that quantity was at the end of the period. This method gives the proportional change on the basis of 100 in the case of each article.

ARITHMETICAL AVERAGE OF PRICES

| | Price January 1 | Price December 31 | Price Variation of $1.00 worth |
|---|---|---|---|
| Sugar | $ .05 | $ .05½ | $1.00 to $1.10 |
| Wheat | .80 | .70 | 1.00 to .87½ |
| Pine | 15.00 | 20.00 | 1.00 to 1.33⅓ |
| Cotton | .10 | .15 | 1.00 to 1.50 |
| Quinine | .30 | .25 | 1.00 to .83⅓ |
| Totals | . . . | . . . | $5.00 to $5.64⅙ |
| Average | . . . | . . . | 100 to 112.8 |

Sugar, it is evident, rose 10 per cent, so that the price of what on January 1 cost $1.00 was on December 31 $1.10. A dollar's worth of wheat fell to 87½ cents, the decline from 80 to 70 being 12½ per cent. Pine rose 33⅓ per cent and cotton 50 per cent. Quinine fell 16⅔ per cent. The average of all five articles rose 12.8 per cent.

This rise of prices indicates a decline in the value of money in respect to these goods, but the percentage of that decline is not the same as the percentage of price change. To ascertain how much the value of money has fallen, we must find how much less 100 cents will buy at the end of the year than at the beginning. Since 112.8 cents will buy on December 31 only as much as 100 cents bought January 1, the purchasing power of 100 cents at the end of the year is evidently only $\frac{100}{112.8}$ part of what it was at the beginning, or 88.6 per cent. Hence $1.00 would buy on December 31 no more than $.886 bought on January 1.

If we could in this way average the prices of all commodities at different times, we should have an index number the changes in which would indicate changes in the purchasing power of money. A rise of 12.8 per cent in that number would mean a decline of 11.4 per cent in the purchasing power of money. The general law is this: *Changes in the index number show directly variations in the general price level; changes in its reciprocal show variations in the value of money.*

The arithmetical mean, as the basis for an index number, is open to objection because it exaggerates the effect of rising prices. Suppose, for instance, that at a given time the prices of given quantities of coffee and tobacco are each $1.00, and that in the course of a year coffee falls to $.50, while tobacco doubles in price; the index number after the change, if computed by the arithmetical mean, would be 125, indicating a decline in the value of money; whereas it would appear that the value of money had not changed, since it had gained as much in the case of one commodity as it had lost in the case of the other.

To overcome this defect of the arithmetical mean some economists urge the use of the geometric mean, which is the square root of the product of two prices, the cube root of the product of three commodities, etc. In the case above supposed, tobacco having risen to 200 and coffee dropped to 50, the geometric mean would still be 100, showing no change in the value of money.

A third method adopts the median as an index number, the median being the middle number of a series, there being as many above as below it. A fourth method yields the harmonic mean, which is computed from the reciprocals of a series of numbers. We will not stop to discuss these different methods. Fortunately it does not seem to be of much practical moment which method is used, for the results obtained by the different methods do not vary widely. For example, index numbers for the year 1885, as determined from the same data by seven different methods, all fell between 69 and 72. It is generally agreed that the difference between the results of different methods is never likely to be great.

### DEFECTS OF THE INDEX NUMBER

71. We cannot assume that any index number that has been constructed gives an absolutely accurate indication of the changes in the value or purchasing power of money during a long period of years. It is practically impossible to get the data necessary

for the construction of an ideal index number. Retail prices are not a matter of record; consequently the statistician bases his calculations on changes in wholesale prices, although it is well known that these are not always accompanied by changes in retail prices. Again, human wants are constantly shifting. Articles of great consequence in one decade may lose their importance in the next and perhaps cease to be consumed at all. If the prices of such articles have entered into the formation of an index number, they must be dropped and the prices of other articles be substituted. Anything like absolute accuracy under such conditions is evidently impossible.

An index number should be deduced from the prices of basic or representative commodities. If there is a rise in the prices of such commodities as iron, copper, coal, lead, wheat, cotton, corn, beef, lumber, and leather, it is morally certain that there will be a rise in the prices of the countless articles into which these enter as raw materials. When an index number is derived from the prices of basic commodities, it will unquestionably record the general tendencies of prices and show, if not the exact, at least the general changes in the purchasing power of money.

In order that the index number may reflect the varying degrees of importance possessed by different commodities, methods of "weighting" it have been devised. For example, if the value of the iron consumed in the world is found to be five times greater than the value of the tin consumed, the price of iron may be used five times in the list of prices from which the index number is deduced, and the price of tin only once. As factors in the demand for money, wheat and cotton are much more important than ginger and pepper; price changes in the former, therefore, are given greater weight. However, the importance of weighting seems to be mainly theoretical, for in practice statisticians derive about the same results from both weighted and unweighted tables.

The index number, it should be noted, shows the value of money only with respect to goods. The value of money with respect to human labor can be discovered only by an index number based upon rates of wages. Such an index number it is practically impossible to make. The task has been attempted several times, but the results have proved unsatisfactory. Rates of wages vary so much in different communities, and at different seasons in the same community, that it is impossible to determine with any exactness what is the average wage rate in a country. So far as the discussion of money is concerned, wage changes, as we shall see later, are of far less importance than price changes, so that when we speak of the value of money we need have in mind only its value with respect to goods.

72. An ideal index number, by revealing variations in the value of money, would furnish a basis for an exact measurement of changes in the values of commodities from year to year. Money, as we have seen, cannot properly be called a unit of value, for money is itself constantly fluctuating in value. But since the index number measures and records changes in the value of money, by its aid in an analysis of the price changes of any commodity we are able to eliminate the effect of changes in the value of money and thus determine the amount of variation in the value of the commodity itself. To illustrate: Let us suppose that during a certain decade the index number fell 25 per cent, say from 100 to 75. This would mean that one could buy as much at the end of the decade with 75 cents as one could have bought at the beginning with a dollar. It would show, therefore, an increase of 33⅓ per cent in the value or purchasing power of money. Evidently if the price of any article had fallen exactly 25 per cent during the decade, its value would be unchanged. If the price of an article had fallen more than 25 per cent, then its value would have declined by an amount proportionate to the extent by which its decline of price exceeded 25 per cent; while if its price had fallen less than 25 per cent, its value would have risen in proportion to the difference between its decline of price and the 25 per cent decline in general prices.[1] Thus, if our index number were

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[1] Suppose that during the decade in question meat did not change in price, but sold at 10 cents a pound. Would this fact mean that meat had not changed in

perfect, by comparing the price changes of an article with contemporaneous changes in the index number we might arrive at changes in the value of the article. An ideal index number, therefore, and not money, would deserve to be called a unit or measure of value.

73. The index number most commonly referred to in this country for the period from 1840 to 1891 was prepared by Dr. R. P. Falkner for the United States Senate Committee on Finance.[1] From 1840 to 1860 the prices of 90 commodities were used; between 1860 and 1891, the prices of 223 articles. The year 1860 is taken as the base, the price of each article on January 1 of that year being assumed to be 100. Falkner used the arithmetical mean and made tables both from weighted and unweighted prices. Between 1860 and 1879 the standard money in this country was the depreciated greenback. In order to show what the index number would have been if gold had been used as money, Professor Falkner made a reduction in the greenback index number proportionate to its depreciation as indicated by the premium on gold. This method was the only one possible, but it must not be inferred that prices would have corresponded with this index number if the gold standard had been maintained.

In order to show the effect of price changes upon the welfare of workingmen, Professor Falkner compiled tables of prices in which various articles were weighted in proportion to their estimated importance in the average workingman's budget. An index number computed on this basis, although it does not reveal changes in the general value of money, is of great sociological interest and importance.

value? Clearly not, for money had risen in value during the decade $33\frac{1}{3}$ per cent, and meat could not have maintained a steady exchange relation with money unless its value had also risen in the same proportion. Suppose now that meat during the decade fell in price from 10 cents to 9 cents. What change in the value of meat would that decline in its price indicate? Since the price of meat had fallen from 100 to only 90, while the prices of things in general were falling from 100 to 75, it follows that the value of meat with respect to things in general had risen in the proportion of 75 to 90, i.e. 20 per cent.

[1] *Aldrich Report on Wholesale Prices*, etc. (government document).

The Falkner index number has been continued by the Department of Labor at Washington, but with some modifications. The base line is the average of prices for the year 1913, and the prices of 404 commodities are used, an effort being made to get the average yearly price of each and to assign to each a proper weight. It is proposed to continue this index number by annual publications in the bulletin of the department.[1]

The first index number derived from English prices with any show of scientific accuracy was published in 1863 by the well-known economist W. Stanley Jevons.[2] Jevons based his calculations upon the prices of 39 articles, and first found their average prices for the period from 1845 to 1850, calling that price 100. His index number covered the period from 1844 to 1862 and was prepared in order to measure the effect the new gold from California and Australia had exerted upon prices. His study of this subject is a classic in the literature of finance.

The index number most commonly referred to in the English-speaking world is that of the London *Economist*. It is in principle a continuation of the Jevons number. The base is the average for the period 1901–1905, and 44 articles are used, two or three grades being used in some instances.[3] Jevons employed the geometric mean, while the *Economist* gives the simple arithmetical average. One of the defects of the *Economist's* number is the necessary consequence of the small number of articles upon which it is based; a great rise in the price of any one of these articles causes an excessive change in the index number. For example, the price of cotton rose enormously during the Civil War, but this rise in its price did not indicate a corresponding fall in the purchasing power of money, for during that period cotton as an article of English trade did not possess great relative importance.

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[1] See *Bulletin of the Bureau of Labor Statistics, No. 296*, for June, 1922. The *Survey of Current Business*, issued by the United States Department of Commerce in July, 1922, stated that for that year the price of each commodity was weighted according to the estimated quantity marketed during 1919.

[2] See *Investigations in Currency and Finance*, — chapter on "A Serious Fall in the Value of Gold" etc.

[3] Coffee, cotton, cotton yarn, sugar, tea, tobacco, beef, mutton, wheat, wool, silk, flax and hemp, indigo, oil, timber, tallow, leather, copper, iron, lead, tin, barley, oats, flour, potatoes, rice, butter, jute, coal, rubber.

A much-quoted index number is that published annually by Mr. Augustus Sauerbeck in the *Journal of the Royal Statistical Society.* His base line is the average prices of 1867–1877, and he employs the simple arithmetical average. He uses the prices of 45 articles and does not "weight" them except as he introduces two or three grades of the more important commodities. This index number is criticised because all of the articles are raw products, such as wheat, coal, iron, leather, cotton, etc. The objection does not seem sound, for if the prices of raw materials change, the fact is certain to be reflected, even though to a lesser degree, in the prices of manufactured goods.

One of the most carefully prepared index numbers is that of Dr. Soetbeer, made from Hamburg prices and covering the period from 1841 to 1891. It is based upon the average prices of 114 commodities. In so far as possible he obtained the quantity of each commodity imported into Hamburg and the price paid for each consignment; then by simple division he obtained the average price.

A convenient table of prices is published each month in this country by Dun's *Review.* No base line is taken, the index number being merely a total of all the prices. As the prices of about 300 articles are given, changes in the totals indicate in a general way changes in the purchasing power of money.

The table on the following page gives the index numbers of Sauerbeck, of the *Economist*, of Soetbeer, of Falkner, and of the Department of Labor. The Falkner number is continued from 1891 to 1904 by reduction of the number calculated by the Department of Labor. The second column shows the average of prices that prevailed in the United States from 1862 to 1878; the first column gives for that period the corresponding gold prices based on the depreciation of the greenback.[1]

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[1] The index numbers of Sauerbeck, the *Economist*, and the Department of Labor are continued to 1912 in the Appendix. Another United States index number is *Bradstreet's*, which is the total of all the prices of 96 articles, no base being taken.

## STANDARD INDEX NUMBERS (1860–1904)

| | Falkner (1860 = 100) | | U.S. Department of Commerce and Labor (Base 1890–1899)[1] | Sauerbeck (Base 1867–1877)[1] | "Economist" (Base 1845–1850)[1] | Soetbeer (Base 1847–1850) |
|---|---|---|---|---|---|---|
| | Gold | Paper (1862–1878) | | | | |
| 1860 | 100.0 | | | 99 | 122 | 121.0 |
| 1861 | 100.6 | | | 98 | 124 | 118.1 |
| 1862 | 114.9 | 117.8 | | 101 | 131 | 122.6 |
| 1863 | 102.4 | 148.6 | | 103 | 159 | 125.5 |
| 1864 | 122.5 | 190.5 | | 105 | 172 | 129.3 |
| 1865 | 100.3 | 216.8 | | 101 | 162 | 122.6 |
| 1866 | 136.3 | 191.0 | | 102 | 162 | 125.8 |
| 1867 | 127.9 | 172.2 | | 100 | 137 | 124.4 |
| 1868 | 115.9 | 160.5 | | 99 | 122 | 122.0 |
| 1869 | 113.2 | 153.5 | | 98 | 121 | 123.4 |
| 1870 | 117.3 | 142.3 | | 96 | 122 | 122.9 |
| 1871 | 122.9 | 136.0 | | 100 | 118 | 127.0 |
| 1872 | 127.2 | 138.8 | | 109 | 129 | 135.6 |
| 1873 | 122.0 | 137.5 | | 111 | 134 | 138.3 |
| 1874 | 119.4 | 133.0 | | 102 | 131 | 136.2 |
| 1875 | 113.4 | 127.6 | | 96 | 126 | 129.8 |
| 1876 | 104.8 | 118.2 | | 95 | 123 | 128.3 |
| 1877 | 104.4 | 110.9 | | 94 | 123 | 127.7 |
| 1878 | 99.9 | 101.3 | | 87 | 116 | 120.6 |
| 1879 | 96.6 | 96.6 | | 83 | 100 | 117.1 |
| 1880 | 106.9 | | | 88 | 115 | 121.9 |
| 1881 | 105.7 | | | 85 | 108 | 121.0 |
| 1882 | 108.5 | | | 84 | 111 | 122.1 |
| 1883 | 106.0 | | | 82 | 106 | 122.2 |
| 1884 | 99.4 | | | 76 | 101 | 114.2 |
| 1885 | 93.0 | | | 72 | 95 | 108.7 |
| 1886 | 91.9 | | | 69 | 92 | 104.0 |
| 1887 | 92.6 | | | 68 | 94 | 102.0 |
| 1888 | 94.2 | | | 70 | 101 | 102.0 |
| 1889 | 94.2 | | | 72 | 99 | 106.1 |
| 1890 | 92.3 | | 112.9 | 72 | 102 | 108.1 |
| 1891 | 92.2 | | 111.7 | 72 | 101 | 109.2 |
| 1892 | 87.6 | | 106.1 | 68 | 97 | |
| 1893 | 87.2 | | 105.6 | 68 | 96 | |
| 1894 | 79.3 | | 96.1 | 63 | 95 | |
| 1895 | 77.2 | | 93.6 | 62 | 87 | |
| 1896 | 74.6 | | 90.4 | 61 | 91 | |
| 1897 | 74.0 | | 89.7 | 62 | 88 | |
| 1898 | 77.1 | | 93.4 | 64 | 86 | |
| 1899 | 83.9 | | 101.7 | 68 | 87 | |
| 1900 | 91.2 | | 110.5 | 75 | 97 | |
| 1901 | 88.5 | | 108.5 | 70 | 97 | |
| 1902 | 93.2 | | 112.9 | 69 | 89 | |
| 1903 | 93.7 | | 113.6 | 69 | 91 | |
| 1904 | 93.3 | | 113.0 | 70 | 100 | |

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[1] Continued to 1920 in the Appendix.

## PRICES AND THE MONEY SUPPLY

74. The price of any particular good, since it represents the amount of money for which the good exchanges, must be affected by any alteration either in the value of the good or in the value of money. Changes in the price of a commodity, therefore, may be brought about in four different ways: by a change (1) in the demand for the commodity; (2) in the supply of the commodity; (3) in the demand for money; (4) in the supply of money. Changes of the first and second kind change the value of the commodity, and will be considered in this chapter only in so far as changes in the supply of commodities, by altering the total volume of exchanges, affect the demand for money. Changes of the third and fourth kind directly affect the value of money, and it is the purpose of this chapter to show by concrete illustration how such changes act upon prices.

A change in the general level of prices means a change in the purchasing power or value of money, and can be brought about only by circumstances which affect either the demand for or supply of money. A rise in prices must ensue if the demand for money declines more rapidly than the supply, or if the supply increases more rapidly than the demand; and a fall of prices results if changes the opposite of these take place. Under no other conditions can the value of money (or the general level of prices) be raised or lowered.

75. We will first consider the manner in which a change in the supply of money affects prices. Let us suppose that the supply of money in the United States has been greatly increased during a certain month by an influx of new gold from the mines of Alaska, California, and Colorado. The miners will turn their gold over to the United States Mint and receive money or currency in exchange.[1] This money the

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[1] The miner turns his gold over to the United States Mint and receives a check on the Treasury at the rate of $20.67 per ounce pure gold, less the expense of assaying and refining. This check is payable in legal tender and is accepted like any other check. The cash paid out by the Treasury in exchange for gold is replaced by the coin into which the gold is minted. Theoretically the miner takes gold to the mint in the raw state and carries away the same gold

miners will probably dispose of in one of four ways: (1) hoard it; (2) buy goods with it; (3) lend it; (4) deposit it in banks. Such money as the miners hoard, which will probably be very little, can have no effect on prices until it is spent in the purchase of goods. But most of them will make the natural and reasonable disposition of their money; each will spend more or less for the satisfaction of his present wants, will keep a certain sum for the satisfaction of future wants, and will either lend the balance or deposit it in a bank. That portion which is spent will constitute a new demand for certain classes of goods and will tend to raise their prices. That portion which is loaned will be expended by the borrowers in the purchase of goods and payment of wages, and will tend to advance both prices and wages.

Let us suppose that the banking reserves of the country are increased $50,000,000 by the deposits of these miners. Will this money lie idle and so have no effect on prices? Certainly not. It will be the most potent part of the new supply. Bankers are the last people in the world to look with complacence upon a hoard of idle money. Their dividends depend upon their power to make a dollar do twofold or fourfold work. The banks that receive this $50,000,000 of new money will not rest till they have found borrowers, even though they are obliged to lower their rate of discount. That $50,000,000 may be made the basis for an expansion of bank credit to the amount of $200,000,000 or even $300,000,000, and the borrowers of this credit will buy goods and labor. Thus the new gold, in the form of currency or bank credit, will gradually increase the demand for various goods and so cause their prices to rise. Since there is no reason why the demand for other goods should have fallen off, the general price level will have been raised, indicating a decline in the value of money.

76. In the foregoing illustration it is tacitly assumed that none of the new gold is at once taken by jewelers and others for use in the arts, and this assumption is justified, for there is no reason

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coined; but practically he is given cash at once for his gold and does not have to wait till it is coined.

for supposing that the demand of manufacturers for gold will increase until gold has actually fallen in value, — that is, until the prices of goods have risen. Of the new gold added to the world's stock each year it is estimated that about 20 per cent is absorbed by the arts' demand, but there is little evidence that the consumption of gold in this way increases as its value falls. The charm of gold as an ornament lies in its value almost as much as in its beauty.

An important secondary effect remains to be noted. We assumed an addition of at least $50,000,000 to our money supply at a time when the demand for money was not increasing, and saw that a rise of prices must result. Unless something had happened to lower the value of gold elsewhere at the same time, the price level of this country would rise above that of other gold-standard countries. Our imports would in consequence increase and our exports decrease, and thus a balance of international indebtedness would be created that would compel an export of gold from the United States. Thus, in accordance with the law providing for the automatic distribution of gold, explained in Chapters II and V, each country would finally get its proportionate share of the new supply and prices in all gold-standard countries would ultimately be lifted in the same degree.

77. To see how a reduction in the supply of money would affect prices, let us suppose that the United States government during a certain month, as a result of bond sales or increased taxation, takes $50,000,000 from circulation and holds it in the Treasury's vaults at Washington. Even though this currency comes in the first instance from the pockets of the people, it will lead to a corresponding reduction of the banking reserves, for the need of the people for currency as a medium of exchange and store of value will not immediately be affected, and that need the banks must supply. The banks, their reserves having declined $50,000,000, will be obliged to call loans and reduce their liabilities by something like $200,000,000. This contraction of credit, whether accompanied by a rise of the rate of interest or not, will mean a reduction in the volume

of available purchasing power, and certain business men will be obliged to suspend or narrow their operations. The demand for goods and labor will fall off and many sellers will find themselves obliged to lower prices in order to attract buyers.

## PRICES AND THE MONEY DEMAND

78. A change in the demand for money, as was shown in Chapter IV, is less easily measured than a change in the supply, yet its effect upon the value of money, and hence upon prices, is quite as important. An increase in the demand for money may result (1) from an increase in the volume of exchanges, (2) from a contraction of credit, or (3) from a lessened rapidity of circulation. The third cause, as already shown, amounts to an increase in the need for money to serve as a so-called store of value for future use, and is nowhere subject to great fluctuations. The volume of exchanges within a country depends mainly upon the number of its people and the quantities of goods produced. Let us consider how changes in these must affect the demand for money and so the level of prices.

That an increase of population, if the use of credit is not equally enlarged, must be accompanied by an increased need for money is evident. If the population of a country grows from ten million to eleven million, methods of production and business remaining the same, the need for money as a medium of exchange and as a basis of credit will increase in the same proportion. If the supply of money has not also increased 10 per cent, assuming that there has been no enlarged use of credit, the value of money will have increased and the prices of goods in general will have fallen. It is not easy to find a country in which these conditions have all existed for any period, for most countries during the last century have used freely coined gold and silver as money, so that the supply has never been constant. India, however, between 1893 and 1897, when the free coinage of silver was not permitted, furnished a fairly good illustration of what will happen when the supply of money does not increase as the population grows. The value of the silver rupee, which remained the monetary unit of India until 1899, when the gold standard was adopted, steadily rose above the value of the bullion it contained, and prices tended downward.[1]

As we have already seen (Chapter IV), it must not be concluded that the supply of money should increase in the same ratio as the population. The other important conditions seldom remain unchanged; the development of credit, especially during the last half century, has tended to lessen the need for money and so to counteract the influence of the growth of population.

79. An increase in the volume of exchanges, due to improved methods of production (i.e. lowered costs), tends to increase the demand for money and to cause a fall in prices. If a country's production of wealth is increased by improvements in machinery or by a more efficient application of labor, it must follow that a greater volume of goods will be exchanged, and, therefore, that more money will be needed than formerly to effect exchanges at the old level of prices. If the improvements in production have been general in their application, lowering the costs and increasing the supply of most articles consumed by men, the *values* of goods in general will not have been affected; each man on the average having doubled his production, goods will exchange at the same ratios as before and have the same values. For example, if the shoemaker has doubled his productive capacity at the same time that the farmer has doubled his, a pair of shoes will cost the farmer no more bushels of wheat than formerly; in other words, the value of wheat in shoes will remain unchanged. But if, while this process has been going on, the supply of money has not also been doubled, it is evident that each dollar will be called on to exchange twice as many goods as before, and that it will have twice the value it formerly had; that is, prices will have fallen 50 per cent.

In this illustration it should be noted that the influence which credit might have had upon the change of prices has been left out of account. If while production is doubling on account of improvements the use of credit is enlarged, then the increased demand for a medium of exchange may be fully met by credit, so that there will be no change whatever in the general level of prices. In the nature of things, however, there is no reason why the use of credit should increase at a pace equal to an increase in the demand for a medium of exchange. Increased use of credit depends, as is shown in Chapter III, upon increasing confidence and upon improvements in credit machinery.

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[1] Details are given in Chapter XIV.

80. The fall of prices caused by an increase in the production of wealth as a result of improvements has been a matter touching which there has been much misapprehension. People usually think of such a fall of prices as being the result of a fall in the values of commodities rather than of a rise in the value of money, and some economists have taken the same view. It is important to be clear upon this point. The popular misapprehension is easily explained. When an improvement in the production of any particular commodity lowers its cost, the fall in its price is actually indicative of a fall in its value or exchange power. Naturally, therefore, when improvements throughout the whole field of industry are reducing costs and are bringing into the markets larger quantities of goods, people assume that the resultant general decline of prices represents a general decline of values. That this assumption cannot be true a moment's thinking about the meaning of value will show. The value of a good is its purchasing power, — its exchange relation with other goods, — and is measured by the quantities of other goods for which it will exchange. That a general fall or rise of the values of goods is an absurdity was shown in Chapter II. A general fall of the prices of goods means merely that money buys more than formerly, i.e. that the value of money has risen. It can mean nothing else, and the cause of the increased value, under the conditions of our hypothesis, lies in the increased demand for money due to the offer for it of larger quantities of goods.

81. Despite the *a priori* simplicity of this proposition writers of some standing refuse to accept it, holding that a fall of prices resulting from lowered costs of production does not mean an appreciation of money. Such a fall of prices, they say, is born of forces touching commodities only; and then in great detail

they show, in the case of one commodity after another, how some new process or machine leads to a decline in its value and so of its price. How, it is asked, can the value of money have been affected when none of these forces has in the remotest way touched money?

Their error, apart from the twist they give the words "value" and "appreciation," seems to lie in a misconception of the nature of the demand for money. That tends to vary, as has been shown, with the quantity of goods exchanged, and any circumstance, whether a rising birth rate, a steam plow, or a rotary printing press, which leads to an increased production and sale of goods, acts directly upon it, tending to cause the value of money to rise and prices in general to fall. As each commodity is affected by the improvement in its production, its value certainly falls as does its price; but as the process goes on there is a constant readjustment of valuations. The values (but not the prices) of those commodities first affected rise whenever an improvement forces down the value of another commodity, until at the end, if the costs of all commodities have been lowered, we have the same exchange relations between commodities that existed before the era of improvements began. Money, if its supply has not also increased, will have risen in value because of the increased demand for it, that is, because more goods are offered for it.

A fall of costs due to improvements can lead to no general fall of prices except by increasing the quantities of goods produced. Take, for example, an improvement in the manufacture of automobiles, which brings their average price down from $1000 to $500. If the reduction did not lead to twice the former sales, an upward tendency would be given to the prices of other articles, for an increased amount of the community's available money and credit would be offered for them. If, on the other hand, the sales of automobiles should more than double, and so absorb more of the country's available money and credit than formerly, the demand for other articles would necessarily be weakened, and we should have a fall in the prices of articles whose costs had not been lowered.

82. Another source of confusion on this subject is the tendency of some writers to confuse real costs of production with money costs. Such writers will object to the conclusions in the foregoing paragraphs on the ground that a change in price is assumed without a corresponding change in the cost of production, which in the long run determines the prices of most goods. This objection is not well grounded. To a business man the amount of money he spends in producing or obtaining a commodity is most important; it is the only "cost" which he knows; and the article cannot long sell under that sum. If the relation of money to goods remained always the same, that is, if the value of money were stable, changes in this money cost (or expense, as it is called by economists) would coincide with changes in real costs of production. By real cost of production is meant the total value of the goods consumed in the production of an article, — the value of the raw material, of the means of subsistence given to laborers, and of a certain amount of plant and machinery. Real costs are not changed by a general rise or fall of prices, and it is these real costs which in the long run fix the values of goods produced under conditions of free competition.

For example, if general prices rise 5 per cent during a certain year, money costs will increase 5 per cent, for the raw material, etc., necessary for the production of a particular article will cost 5 per cent more money; but there will be no increase on this account in real costs, for the rise of prices will not make necessary increased quantities of materials, machinery, or labor.

This distinction between real costs and money costs is one that the reader must clearly understand, for any misconception here will lead him into quicksand. He must see clearly that it is possible for prices to be rising even at a time when real costs of production are falling. Something of that kind happened during the five years following 1898. During this quinquennium there was no break in the quickstep of industry, no folding of hands on the part of inventors or *entrepreneurs;* real costs of production surely declined just as they did in the seventies and eighties; yet the prices of commodities rose some 25 per cent and the money costs of almost all articles advanced in proportion. That the per capita production of wealth increased during this period there is no reason to doubt.

## INFLUENCE OF CREDIT

83. An increase in the use of credit, since it lessens the demand or need for money by rendering the existing supply more efficient, is practically equivalent to an increase of the money supply, and therefore tends to cause a rise in prices. This proposition has already been explained in a general way. Here we shall consider briefly the different degrees of influence exerted by the different kinds of credit.

Any circumstances tending to increase the use of credit of limited acceptability, such as checks, bills of exchange, and promissory notes, tends to lower the value of money and raise the level of prices. That such an expansion of credit would actually lift prices unless its influence were counteracted by an opposing force, such as a reduction in the supply of money or an increase in the demand for money, cannot be denied if we have correctly conceived the relation of credit to money; yet upon this point there has been considerable vague writing and no little disagreement among economists. Writers who admit that bank notes and government credit money may influence prices deny that checks and promissory notes possess such power, holding that these latter are born of the transaction which they consummate, and, therefore, that the demand for money is not touched.[1]

Such writers, it will be found, usually have a wrong conception of the nature of credit, regarding it as something independent of and distinct from money. The difference between buying with credit and with money in hand is very slight; in both cases money is the thing with which the buying is done, only in the credit purchase the delivery of the money is promised at a later date. If men go into a market offering checks for commodities, they will influence prices just as much as if they should offer cash or money in hand. In fact, when they offer checks in payment they are really offering money, but for convenience to both buyer and seller delivery is delayed. A commercial traveler does not carry with him the goods he sells, often not even a sample; must we conclude, therefore, that a drummer for the rubber trust is not selling gum shoes, and that his sales will not leave the retailer's demand for rubbers less than it was before his trip?

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[1] To suppose that the "deposit currency" raises prices by increasing general purchasing power in proportion to its increase in volume, is like supposing that an increase of tickets increases the number of chairs at the opera. In "deposit currency" an increase of transactions brings with it, as a necessary consequence, the medium by which exchanges are made; and offsetting goods against each other could not raise general prices. — Laughlin's *Principles of Money*, pp. 137–138. There is no analogy between an opera ticket and a bank check, and never will be unless a system of wireless telephonics some day makes a ticket as satisfying as a seat.

But, it may be asked, if credit in the form of checks and drafts has such an effect on prices, how does it happen that the great volume of these credit instruments created every day does not keep the level of prices in a state of constant agitation? A reply to this question will bring to light two facts worth noting. First, in ordinary times, when the conditions establishing confidence are unchanging, there is no reason why credit from day to day should effect a greater or less proportion of a country's exchanges. In other words, there is no reason why there should be more or less buying with credit to-day than there was yesterday, and hence no reason why prices should rise or fall to-day. But let something happen to fire the hopes of men, then in the stiffening price lists we see the immediate effect of a larger use of credit; or let disaster threaten, and a sudden decline of prices records the contraction of credit. Having in mind ordinary times, therefore, we may say that the use of credit of limited acceptability, like checks and drafts, keeps prices at a higher level than they would maintain if such credit were not used. That, it will be noticed, is equivalent to saying that the use of such credit in ordinary times keeps prices from falling. Anything, however, which affects the confidence upon which credit is based must affect its use and so cause a change in the price level.

The second point to be noted in this connection is the fact that violent changes in prices are usually the result of expansion or contraction in the volume of credit of limited acceptability. This fact receives such frequent illustration on stock and produce exchanges, where practically no money is used at all, and in the real-estate "booms" of western towns, that it need not be dwelt on here.

84. Credit of general acceptability, i.e. credit money, acts on prices very much as would the same amount of new money. Such credit, it should be noted, satisfies within a given country a want that cannot otherwise be satisfied except with money itself. It differs from the check and bill of exchange in that any one is willing to take it in payment for goods and services, and it serves, therefore, in the pockets of the people as a full substitute for money itself. In many countries, furthermore, the law makes it legal tender, or so-called "lawful money," so that the banks use it as a reserve for the security of their depositors. Hence any arbitrary increase in its quantity (i.e. any increase not called for by an increasing monetary demand) puts into the hands of the people something which they treat exactly as they would a corresponding amount of real money, and the effect on prices is the same.

For example, any addition to the quantity of greenbacks or silver dollars in circulation in the United States would have an immediate effect upon the value of money and so upon prices. At a given time a country needs only a certain amount of money to accomplish all of its exchanges, and prices seek adjustment to this amount. A certain amount is needed as a store of value in the banks and in the pockets of the people, and a certain amount for the consummation of exchanges. Credit money may be made to serve both these purposes. In the United States greenbacks and silver dollars, although they are credit instruments, may be lawfully employed by the banks as a basis for their credit operations; hence any increase in their quantity would have as much effect upon prices as a corresponding increase in the quantity of gold. Bank notes, when properly issued, possess a great advantage over government credit money, for they are never put forth except when the demand for money is increasing. Bank notes tend to keep prices from falling, but do not cause them to rise.[1]

## Price Changes not Uniform

85. Prices do not change uniformly. The reader must not suppose that the prices of all goods ever rise or fall together. The level of prices is changed if the price of a single commodity rises or falls while the prices of others remain unchanged. If the prices of some commodities rise while the prices of others fall to a corresponding degree, the level of prices is not changed at all. Prices are the direct outcome of the contact between goods and money or credit. When there is an increase in the supply of money or in the use of credit, only those goods are affected in price which come in contact with the new money or credit, for those are the goods for which there is an increased demand.

86. Let us suppose that a Connecticut farmer discovers in a cave on his farm the storied treasure of Captain Kidd in the shape of 5,000,000 ounces of gold (enough to coin $100,000,000). What will he do with this gold ? He will consult with some good business man whom he trusts, and will select a dozen or more banks in which to deposit his treasure. He will build himself a new house and furnish it sumptuously. Some of his friends will advise him to have a home in the city as well as in the country, and he will buy a house on Fifth Avenue. He will buy grand pianos and automobiles for his children and fit them out with fine clothing. The discovery of that buried gold will evidently increase the demand for various articles and so tend to raise their prices.[2]

Meantime the banks are busy. While they hold this money they can increase their loans, and some of their customers are enabled to make larger purchases of goods than they could have made had not a farmer found Captain Kidd's treasure. In all probability the banks first increase their call loans to speculators in stocks, wheat, corn, cotton, and other produce; and as a result the demand for stocks and other speculative commodities is increased and their prices tend upward. But the farmer does not wish to leave his money long with the banks, for they pay him only 2 per cent interest on it. So he begins to make investments, buying the stocks and bonds of railroads. The purchase of these does not in itself cause the employment of any labor or the purchase of any commodities, but what will the persons who have sold the stocks and bonds do with the money or credit they receive? They have sold their securities in order that they may get money for the purchase of something else. The greater part of that money will go into the construction of new railroads or new industrial plants. Nor will the banks be content always to lend this new money to speculators, for the call loan rate of interest is usually much below the commercial rate of discount. They will extend more credit to merchants and manufacturers, and these men will begin to enlarge their operations.

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[1] This statement is not true of national bank notes, which are not issued under scientific conditions. The important difference between bank notes and government credit money is discussed in the chapter on credit money.

[2] In Sections 86 and 87 the monetary isolation of the United States is assumed, so that none of the new gold is exported.

Thus the farmer's gold, or the credit which it secures, must soon find its way into the hands of men who are engaged in industry, who buy steel, iron, lumber, etc., so that before long there is an increased demand for building materials and labor. Increased demand for commodities will cause their prices to advance almost immediately. Increased demand for labor, as a rule, is first met by the employment of additional men at the old rate of wages, so that the people have more money to spend, and then the retail stores feel the effect of the farmer's new gold. Retailers find their sales increasing and enlarge their orders; then wholesalers and manufacturers see good times ahead. But before the new orders come in from the retailers the manufacturers have already been confronted by the necessity of paying higher prices for their raw materials on account of the speculation caused by the farmer's deposits in the banks.

In time the wages of labor in some employments may have to be advanced in order to keep the men content or to secure sufficient help. Since the laborers are paying higher prices for some of the necessaries of life, they begin to find their wages less adequate than formerly. But rates of wages, despite the efforts of trade unions to maintain a correspondence, rarely rise at once to the same extent as prices; employers refuse to admit the necessity for an advance, and the working classes are themselves only vaguely conscious of it, for they do not readily grasp the concept of a cheapening dollar. Wages are the last thing to feel the effect of an increase of the money supply, for not until prices have risen is the stimulus given to industry which leads to an increase in the demand for labor.

The prices of some articles are fixed by custom and would not be changed at all in the United States by such a comparatively small addition to the money supply as $100,000,000. Such, for example, is the price of a city newspaper, or a quart of milk in a country village, or the fares which travelers pay upon railroads or street cars. These customary charges it would require an extraordinary change in the money supply to affect.

87. During all these changes wrought by an increase in the money supply credit will also have been at work. In the illustration given it was shown that credit was called into play at once, for the bankers to whom the money was intrusted immediately began to make loans with it. Even a slight rise of prices would have some effect upon the profits of various producers. Since many men would find the demand for their goods increasing, they would be inclined to enlarge their operations; consequently the banks would find that the demand for loans was increasing. Furthermore confidence in the business outlook would grow as prices rose, and men would everywhere be more willing than formerly to extend credit. Manufacturers and wholesalers would be more liberal with their old customers and would scrutinize less suspiciously the paper of new customers. As a result the deposits and discounts of banks would grow, credit would become a more and more important factor

in the purchase of goods, and the rise of prices would tend to be more than proportionate to the increase of the money supply.[1]

88. In a country like the United States, where business is done largely by the aid of banks, the credit system being highly developed, an increase of the volume of money affects first the prices of stocks and bonds, for these are the articles that are bought by the men into whose hands the money naturally comes first. The prices of such speculative commodities as wheat, cotton, corn, steel, etc., are affected almost as quickly; not the prices of all at the same time, but first one, then another. If there is great speculative interest in wheat and little in other produce, new money and the credit it supports may all for a time go into the purchase of wheat. On the other hand, it may all go into the stock market. After a time, however, it will get into general circulation and affect the prices of most commodities, influencing first wholesale prices, then retail, and finally rents, wages, and salaries.

89. The downward course of prices during a period when the supply of money is not keeping pace with the demand, is also irregular. Under modern conditions banks first feel the pinch, for the people withdraw from them all the currency they need. As business grows and the need for currency to consummate exchanges at a given level of prices increases, the lawful money reserves of banks are cut into, country banks reduce their balances in New York and other reserve centers, and the city banks are forced to call loans and contract their credits. Speculative borrowers suffer first, and a fall of prices ensues on the stock and produce exchanges, for most of the "bulls" in those

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[1] If we suppose that the farmer found, instead of gold, a store of iron and copper worth $100,000,000 at the prices then prevailing, several interesting queries arise. What would be the effect on the prices of iron and copper, and on the general level of prices? Would the prices of other goods than iron and copper be affected? Would there probably be an expansion of credit? Which would be the more beneficial to the country (its commercial isolation being assumed), such a find of iron and copper, or the find of gold described in the text? In considering these questions let the reader recall the conditions that led western farmers to talk of burning corn in 1921.

markets trade with borrowed funds. After stocks such commodities as wheat, corn, cotton, and pork, in which there is always a large speculative interest, decline in price with more or less suddenness. The heaviness of prices in the great speculative markets invariably gives a chill to confidence in general business circles, for the depression is popularly interpreted as proof of apprehension among experts with regard to the future demand for goods. There is always much talk about overproduction, and very little or none at all about the real cause of the slump. Certain manufacturers find that they can buy their raw materials at lower prices than formerly, and keep their mills running; others find difficulty in getting expected help from the banks, and either run their mills on half time or close them altogether. The fund paid to workingmen is reduced and the sales of retailers fall off. Manufacturers and wholesalers, as the demand for their goods declines, are forced to cut prices, and thus at last the retailer is able to bring his prices down to a level with the means of his customers. Although the total fund paid to workingmen is at once reduced, the rates of wages paid in different occupations are not immediately affected. The laboring classes resist a cut with all the power of their organizations, and their employers, hoping that the depression of prices is only temporary, do not see clearly that a permanent readjustment of wage schedules is necessary.

90. The process of price readjustment is a slow and gradual one. A study of the course of prices during the eighteen years (1897–1915), when the general price level was lifted some 50 per cent by a great increase in the world's supply of gold, will show that during this period some articles doubled in price, that others made only a slight advance, and that still others did not change at all; that wages in some occupations were advanced and that in others the old rates were continued. That the process was slow and long delayed the reader will discover for himself if he examines the statistics of gold production during the preceding years. The world's output of gold steadily increased after 1887, having risen from $105,000,000 in that year to $123,000,000 in 1889; to $147,000,000 in 1892 and

$181,000,000 in 1894. Despite the great addition to the world's stock of gold, prices did not begin to rise in the United States until 1897.[1]

91. Would prices rise in proportion to the increase of the money supply? This question, although a matter of pure theory, has caused considerable discussion. If we could assume that the demand for money would remain unchanged, an affirmative answer would be correct. With twice the amount of money, the proportion of credit transactions remaining unchanged, each dollar would exchange for only half as much as before. But, as we have seen, an addition to the money supply sufficient to raise prices appreciably has a stimulating effect on industry and on the use of credit. We cannot assume, therefore, that the demand or need for money will ever remain the same when the supply is increasing.

But after the adjustment of prices to the enlarged money supply is complete, industry being no longer under an artificial stimulus, the new level of prices should almost exactly reflect the proportionate increase of the money supply. If, for instance, the money of a country were increased 50 per cent during a period of five years, and no further changes were made in the supply for another five years, the price level at the end of the ten years, assuming that the readjustment of prices was then complete, would be 50 per cent higher than it would have been if the supply of money had not been increased. According to the terms of this supposition, as the reader will notice, any changes in the use of credit, in money's rapidity of circulation, in population, or in the production of wealth would not affect the conclusion; for we do not conclude that prices would rise 50 per cent, but that they would be 50 per cent higher than they would have been if the money supply had not been increased.

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[1] As regards the increase — practically the doubling — of the output of gold after 1883, it is quite certain that no effect on prices has been felt from it to this day [1896]. Such things as these must not awaken doubts in our minds as to the correctness of the theory which declares that money is an ordinary article of merchandise, the value of which is determined by the same causes as those which determine the value of all commodities. — Pierson's *Economics*, Vol. I, p. 390 (Wotzel's translation).

Professor Kinley argues that an increase of money cannot have a proportionate effect on prices because the first upward tilt of prices would bring more goods into market and so increase the demand for money;[1] while a fall of prices caused by a reduction of the money supply would lessen the volume of goods offered and so lessen the demand for money, so that the value of money would not rise "in proportion to the diminution in its quantity." Professor Kinley, it seems, is here treating a temporary condition as if it were permanent. The interaction of demand and supply will undoubtedly for a time retard the influence of changes in the supply of money, but only for a time. If more goods are brought forward at the first upward tilt of prices, there will be less to be sold later on, so that in the course of a year, or during what may be called the economic life of commodities, — a few days in the case of fruits and other perishables, a season for modish articles, — the average demand for money will not have been affected. Only in so far as goods are brought forward which would otherwise never have been offered, would the demand for money be really increased, and goods of that character are a negligible quantity.

## Maladjustment of Prices

92. When the money of a country is such that its supply is subject to changes not corresponding to changes in the demand, there is never perfect adjustment between prices and general values. We have seen that changes in the supply of money do not immediately affect the exchange relations of all goods to money. The level of prices is agitated, rising here and there like a crop of oats in a field that has been unevenly fertilized, and considerable time must elapse before a new level of prices, putting commodities into the same exchange relations which they held under the old, is established. During this transitional period there exists what may be called a maladjustment of prices to values, the exchange relations of commodities being disturbed by conditions not primarily affecting their demand or supply

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[1] *Money*, pp. 158–160.

So subtle and gradual is the transition that business men as a rule give no thought to it and do not see its significance, so that they are unaware when they sell goods at the old prices that the money or credit they receive represents less or greater value than before.

This maladjustment of prices is a matter of great consequence, for the world's supply of gold and silver, the metals which most civilized nations are freely coining into money, is constantly increasing at a rate never corresponding with the increase in the monetary demand. Never, therefore, is there perfect adjustment between prices and values, such as would prevail if the money demand and supply were constant ; and sometimes the maladjustment is so great as to exert a powerful influence upon all industry, diverting capital into channels into which it would not otherwise flow, and bringing unexpected, if not undeserved, gains or losses to many *entrepreneurs*.

93. The world's experience has furnished many illustrations of the effect upon prices of changes in the supply of money. In the sixteenth and seventeenth centuries, as a result of the influx of gold and silver from America, prices in Europe rose between 200 and 300 per cent.[1] Spain was most successful in the search for the precious metals, and it was in that country that prices first felt the stimulus of the new supplies. In those days credit, especially international credit, was but little developed, and the important markets of Europe, on account of the difficulties of communication and transportation, were not in such close touch as now, so that the new gold and silver flowed sluggishly from country to country throughout Europe and into the Orient.

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[1] Adam Smith wrote as follows concerning the change in prices during this period : " From about 1570 to about 1640, during a period of about seventy years, silver sunk in its real value, or would exchange for a smaller quantity of labor than before ; and corn rose in its nominal price, and instead of being commonly sold for about two ounces of silver the quarter, or about ten shillings of our present money, came to be sold for six and eight ounces of silver the quarter, or about thirty and forty shillings of our present money. The discovery of the abundant mines of America seems to have been the sole cause of this diminution in the value of silver in proportion to that of corn. It is accounted for accordingly by everybody ; and there never has been any dispute about the fact, or about the cause of it." — *Wealth of Nations*, Book I, chap. xi, pt. iii.

Nevertheless gradually the new supplies of the precious metals were apportioned among the different nations in accordance with the needs of each.

The period between 1810 and 1850 exhibits in striking manner the effect on prices of a failure of the supply of money (gold and silver) to increase at equal pace with the demand. During these forty years the world's output of the precious metals averaged only about $36,000,000 per annum. It is doubtful if the yearly addition to the world's supply was sufficient to meet the demand for the precious metals in the arts and to compensate for the abrasion and hoarding of coins. Whether the supply of gold and silver available for monetary use decreased or not, it is certain that the growing monetary demand for them was not met by a growing supply, for during the period their value doubled, prices falling some 50 per cent.[1]

After 1850 new gold from California and Australia gave prices an upward turn. Between 1820 and 1830 the world's production of gold had amounted to less than $10,000,000 per annum; between 1830 and 1840, to about $13,000,000; between 1840 and 1850, to $36,000,000. The annual output of silver during these years averaged about $25,000,000. After 1850 there was very little increase in the output of silver, but that of gold rose to an annual average of $133,000,000 for the decade ending 1860. During that decade the addition to the world's stock of precious metals amounted to $1,704,000,000, of which only $73,000,000 was silver. The addition of this new money to the world's supply, a quantity greater by $150,000,000 than had been added during the preceding forty years, had an immediate effect on prices in the United States and Europe, although the effect was not so great as it would have been had not India and the Orient eagerly absorbed large quantities of European silver. The new gold first acted on prices through an expansion of credit. The gold discoveries were the sensation of the time; men's imaginations were fired and their hopes lifted. In 1850 and 1851 prices jumped fully 17 per cent. The upward movement culminated in 1857, when prices, according to Falkner's index number, were some 23 per cent above those of 1849. In Europe the upward turn of prices was less marked in 1850 and 1851 than in the United States, but the total advance between 1849 and 1857 was about the same on both continents.[1] The panic of 1857, being attended by a contraction of credit,[2] caused a sudden slump in price, averaging in Europe and the United States about 10 per cent.

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[1] Jevons estimated the fall of prices between 1809 and 1849 at 59 per cent; Sauerbeck, at 45 per cent.

During the next twenty years the causes affecting general prices were complicated in this country by the issue of irredeemable greenbacks, but in countries using gold or silver as money prices rose slowly after 1857 and reached their next high level just before the panic of 1873, when the price level was slightly above that of 1857. The production of precious metals continued on a large scale after 1860, the average output of gold for the next thirteen years being $125,000,000 and of silver $58,000,000. This new gold and silver would doubtless have had a much greater effect on the value of gold, and therefore on prices, had not credit been continuously stifled during this period by the smoke of battlefields in Europe and the United States. War, since it takes men from the farms and shops, reduces the need for currency as a medium of exchange, but this diminution in the demand for money is usually offset by the tendency of men at such a time to hoard gold and silver, and of banks to increase their reserves.

Prices in the United States from 1861 to 1879 did not reflect changes in the value of gold or silver, for during that period the money of the country was inconvertible credit money, the so-called "greenback." Prices rose as the value of the greenback fell, and vice versa. The forces governing the value of the greenback at this time will be discussed in Chapter XIII.

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[1] Between 1849 and 1857 the index number of Jevons rose from 64 to 85, or 32 per cent; Sauerbeck's number, from 74 to 105, or 42 per cent; Soetbeer's number, from 83.8 to 107.7, or 28 per cent.

[2] The loans of the New York banks shrank from $122,000,000 in August to $95,000,000 in October. See Sumner's *History of American Currency*, p. 182.

The reader must not expect to find in the facts of experience full confirmation of any theoretic analysis of principles dependent upon human wants and passions. Just as the physicist, because of interfering forces beyond his control, can point to no phenomenon affording a perfect illustration of the law of gravitation or of the laws of motion in unimpeded operation, so the economist is unable to find in the business world facts that prove beyond cavil a single one of his propositions. Facts demonstrate nothing. As Emerson said, "Every man has facts enough; what is wanted is the heat that dissolves facts." A sound theory is one that explains the facts by disclosing the relations of cause and effect; in so far as a theory fails to do that, it is unsound or incomplete.

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# CHAPTER VII

## THE RELATION OF MONEY AND CREDIT TO THE RATE OF INTEREST

94. Capital and the rate of interest as defined by the economist and by the practical man. 95. The rate of interest is determined by the demand for and supply of capital. 96. The lending power of banks varies with the savings of the people, so that the bank rate of discount and the rate of interest are fixed by the same forces. 97. Why the capital fund of a country corresponds in value with the capital goods, although the fund is derived from consumers' goods as well as from capital goods. 98. The demand for capital is not a demand for money; yet an increasing demand for capital is usually accompanied by an expansion of credit and an upward tendency of prices. 99. Except during a period of price readjustment the supply of money has no relation to the rate of interest. 100. A temporary increase of the money supply tends to lower the rate of interest, and a temporary decrease tends to cause it to rise. 101. A steady or continuous increase or decrease in the money supply perpetuates a maladjustment of prices and exerts a constant influence upon the rate of interest; a steady increase tends to keep the rate of interest above the normal. 102. Sooner or later the stimulus given to industry by rising prices leads to speculation and panic. 103. When the money supply fails to increase as fast as the demand, the rate of interest tends to decline. 104. The decline of profits and the falling off in the demand for capital are wrongly attributed as a rule to overproduction. 105. Changes in the rate of interest in the London money market during the nineteenth century. 106. Why bank reserves are large during a period of decreasing money supply. 107. A maladjustment of prices makes the commodity rate of interest differ from the money rate.

94. The rate of interest, according to economists, is the percentage which the borrower pays the lender for the use of his capital. By capital economists mean all those goods, or kinds of wealth, which people produce in excess of their immediate needs, and which are saved for use in the production of additional wealth. This wealth they usually divide into three classes, as follows: (1) tools and machinery, (2) materials, (3) means of subsistence.

The man of business uses "capital" in a different sense. To him it means all the money and credit that are available for business uses; and the rate of interest is the percentage of money which the borrower gives to a lender for the use of his capital, or money.

We shall show in this chapter that the economist and the practical man have really in mind the same thing when they speak either of capital or of the rate of interest; and shall then consider the extent to which capital[1] and the rate of interest are dependent upon the supply of money and the use of credit.

If a man wishes to make shoes, it is clear that he must have leather and the necessary tools, and also enough food to support him until the shoes are finished and sold; and if he does not own these things, and has no money with which to buy them, he must borrow. Among a people not using money he would be obliged to borrow the goods themselves, and might have great difficulty in doing this, for the men who owned the goods he wanted, although they might be willing to exchange them for other things, might not be willing to lend them. Money removes the necessity for such clumsy barter between the borrower and the lender. Men who have goods they do not wish to use, sell them for money, either cash in hand or credit, and then either buy other things or deposit the money and credit in banks. And men like our shoemaker, who want tools, raw materials, and other capital goods, first borrow money and credit from the banks and therewith buy the things they need. Since money is the thing loaned, the rate of interest is always figured in money, the borrower agreeing to repay the principal plus a sum of money equal to a certain percentage of it. For this reason men are apt to think that the rate of interest is in the main dependent on the supply of money. This view of the matter is superficial.

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[1] In this book the word "capital" is employed in the sense given it by the economist; the business man's idea of capital is expressed by such phrases as "capital funds" or "loanable funds." Recent discussions of the subject reveal a tendency on the part of economists to adopt the business usage, and to make a distinction between abstract capital — money and credit available for use in business — and concrete capital, which is often described as "capital goods," or "producers' goods." Although inclined to favor the business usage, I adopt the economists' in this book lest the reader be confused should he pursue his study in the classical literature of the subject. However we define the terms, the ideas underlying them can be clearly set forth, and that, of course, is the important thing.

95. The rate of interest is determined by the demand for and supply of loanable capital. Notwithstanding the fact that at the present time money is the thing always borrowed, the rate of interest does not primarily depend on the abundance or scarcity of money or upon the demand for it. It depends upon the abundance of capital in the possession of people who do not wish to utilize it, and upon the demand for it; in other words, upon the quantity of wealth which people have produced in excess of their own needs, and upon the demand for it from men who wish to put it to productive uses.

The demand for capital comes from men who see opportunities to make profit in business, and who have not capital enough of their own to carry out their plans. A man, for example, thinks he sees large profits in the manufacture of a pump he has invented. His own savings amount to $10,000, but he finds that if he had $20,000 he could put up a larger plant and make bigger profits than if he employed only his own capital. Therefore he tries to borrow $10,000. The maximum rate of interest he is willing to pay depends altogether upon the rate of profit he expects to make. If he feels certain that he can make 20 per cent, he may be willing to pay 10 or 15 per cent for borrowed capital rather than not have the use of it.

The supply of loanable capital comes from men who have wealth that they do not wish to employ productively, but from which they wish some return, preferring to forego the immediate consumption of it in order that they may have a larger amount for use in the future.

Just as the value of a commodity is determined by what is called its marginal or final utility, so the rate of interest is fixed by the marginal productivity of capital. The demand for capital is not the same with different borrowers. One man might be willing and able to pay 10 per cent, whereas another would see no hope of profit if he paid over 6 per cent, and still another might not be able to pay over 4 per cent. The demand for capital, therefore, will increase as the rate of interest is lowered, and will diminish as the rate of interest is raised. In the same way the amount of capital that will be offered will tend to increase as the rate of interest rises, and tend to decrease as the rate of interest falls. Some men will live economically and save as much as possible if they can lend at 10 per cent, who would not save at all if only 2 per cent were offered. If in a country at a given time there is a borrowing demand for $100,000,000 of capital offered at 6 per cent, that would be the rate of interest provided there is not more than $100,000,000 of capital offered at 6 per cent. If the supply of capital is in excess of that sum, then some of the lenders, fearing they may not find a borrower, will offer loans at less than 6 per cent, say at $5\frac{1}{2}$ per cent. The rate always tends toward that figure which establishes an equilibrium between the demand and supply.

## ORIGIN OF LOANABLE FUNDS

96. The lending power of banks varies with the savings of the people, so that the bank rate of discount is fixed by the same forces which fix the rate of interest. The average borrower always thinks of his wants in terms of money. A manufacturer who wishes to expand his business needs more capital, but always thinks of his need as being for money or credit. He consults the financial page of a newspaper and it tells him that money is "tight," that the rate of discount is correspondingly high, and that the banks are unable to expand their loans. His ability to borrow seems to him, and to the banker from whom he wishes to borrow, to depend altogether upon the supply of money in the community. If "money" is plentiful, the rate of interest is low; if it is scarce, the rate of interest is high. So business men and bankers usually think of the rate of interest as being determined altogether by the money situation, and often assume that a high rate indicates a need of more money and that a low rate is due to a plethora of money. We have here a confusion of money with capital which it is necessary to clear away, for it has led to mischievous legislation in the past and is to-day the basis of worthless remedies proposed for the relief of the money market.

The loanable funds in the possession of banks are derived from and are representative of the loanable capital in a country. When the amount of loanable capital increases the amount of loanable funds increases in a corresponding degree. Banks create nothing; all their lending power is the product of industry. Among a people who produce little wealth and save none a bank could not exist, for it would receive no deposits and could make no loans. Every deposit of money or credit in a bank represents actual wealth or capital that has been saved in the community. In a country like the United States, where practically all lending is done by banks, and where the savings of the people are deposited in them, their power to lend varies with those savings. When a farmer at the end of a season finds that after paying all expenses he has left ten tons of hay for which he has no use, he can be said to have saved ten tons of hay. In an age of barter he might have used that hay as capital and enlarged his herd of cattle, or he might have loaned it to a neighbor on condition that he should be repaid eleven tons a year later, or he could have exchanged the hay for other goods. Under the modern money régime he can do any one of these things with his hay, but in a much easier way. He may either use it himself or sell it for money or credit, say $100, and then either spend the $100 or lend it. That $100 represents the ten tons of hay for which he had no use; it constitutes a "loanable fund" derived from the concrete capital, hay. If we could trace back to their origin the $35,000,000,000 of bank deposits in the United States, we should find that all had their source in concrete products of labor for which the owners had no immediate use. This statement applies to both classes of deposits described in Chapter III. The cash deposit represents goods which the depositor has parted with; the credit or loan deposit represents goods which the depositor (who is a borrower) is about to acquire, and becomes the basis for a cash deposit in the hands of the man from whom the goods are bought. The concrete goods not immediately wanted by the owners constitute the country's loanable capital; the money and credit for which these goods are exchanged constitute the loanable funds of banks.

97. It should be noted that the capital fund of a country arises not only from the sale of capital goods but also from the sale of goods that are ready for consumption, which are called "consumers' goods." For example, a manufacturer of shoes, which are consumers' goods, is quite as likely to deposit his profits in a bank or to use them in the enlargement of his own business as is the manufacturer of plows, which are capital goods. How, then, can there be any necessary correspondence between the amount of capital goods and the fund which the business man views as capital? The size of the fund available for business use evidently varies, other things the same, with the rate of interest offered by the *entrepreneur;* a high rate will tempt people to save and lend part of their income who would not save at all if a low rate were offered. Hence the capital fund swells as the interest rate rises and contracts as the interest rate declines.

If for any reason, such as a rise in the rate of interest caused by a war, a people become more parsimonious and the capital fund of a country suddenly increases, at once there is a stronger demand for capital goods and their prices rise, while the prices of certain consumers' goods weaken, for people are buying less of comforts and luxuries. This change in prices will lead to an increased production of capital goods and to a reduction in the output of consumers' goods. Thus there is a constant correspondence or relationship between capital goods and capital fund, between the capital of the economist and the capital of the practical man.

The following diagram may help the reader. Let circle I represent the country's new wealth at any moment; it is divided into (*a*) consumers' goods, that is, goods capable of immediately satisfying desire; and (*b*) capital goods, which cannot immediately satisfy wants and have value only because they are aids to the production of consumers' goods.

Let circle II represent the fund of money and credit for which all the goods in circle I are exchanged. This fund will also be divided into two parts: ($a'$) the money and credit spent in the purchase of the necessaries and comforts of life, that is, on direct satisfactions; ($b'$) that spent in the purchase of capital goods, that is, in business or in the production of more wealth.

The two funds ($a'$) and ($b'$) in circle II are separated by a wave line to indicate the fact that they are easily expanded or contracted. Present and future wants are competing for the total fund; the business man or *entrepreneur* represents future wants, and the more he bids in the way of interest, the more he gets. On the other hand, the two classes of goods ($a$) and ($b$) in circle I, being comparatively fixed in quantity at any given time, are separated by a straight line; yet the size of each class of these is in some degree capable of immediate expansion and contraction, for there are many goods which lend themselves to either productive or unproductive uses. A family horse, for instance, is a consumer's good; yet a rise in the price of horses may cause its sale to an expressman and so make it a capital good.

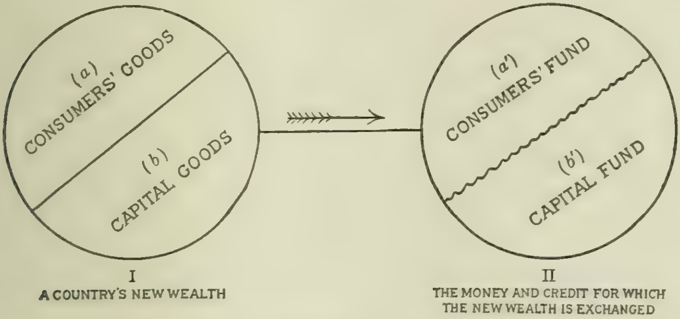

DIAGRAM IV

It is evident that the origin of the fund ($b'$) in the second circle is not exclusively in ($b$) of the first circle; the capital fund ($b'$) comes from all classes of people, from those producing luxuries as well as from those producing capital goods. Nevertheless the values of ($b$) and ($b'$) will always pretty closely correspond, and any sudden increase in ($b'$) will lead to a corresponding though gradual increase in the quantity of goods in (*b*); for the resultant increase in the demand for capital goods will raise their value and so lead to an increase in their volume through increased production and through the conversion of consumers' goods into capital goods.

Capital, then, as distinct from capital goods, may be defined as that fund of money and credit which at any time is available for use in business.[1]

It is clear, therefore, that the bank rate of discount — the rate charged by banks for the use of their money and credit — must correspond with the rate of interest upon capital. The loanable capital and the loanable funds of a country are practically the same thing: the one a heterogeneous mass of value in the form of various goods; the other the same mass of value made homogeneous by the universal solvent, money. The bank rate of discount, since it is determined by the demand for and supply of loanable funds, is governed by the same forces which fix the rate of interest on capital. The fact that banks make a practice of deducting the interest from the principal at the time a loan is made, tends to keep the discount rate a fraction lower than it would be if the interest were computed on the present worth of the loan, but that difference is a mere matter of arithmetic and does not alter the significance of the rate of discount.

98. A demand for capital is not a demand for money. This is a proposition of much practical importance. The demand for money comes from people who have something to sell; it tends to vary with the volume of exchanges. The demand for capital comes from men who want to borrow something, and who want to get possession of the tools and raw materials of industry; it does not necessarily have any effect on the volume of exchanges. The demand for money yields price; the demand for capital yields the rate of interest.

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[1] The reader who wishes to examine other discussions of this rather abstruse subject should consult Seager's *Economics*, Fetter's *Economics*, Veblen's *Theory of Business Enterprise*, Böhm-Bawerk's *Capital*, and Irving Fisher's article on "Precedents for defining Capital" in *Quarterly Journal of Economics* for May, 1904.

But does not the man who wants more capital, who wants a larger plant than he can buy with his own wealth, — does not he go into the market after money, or at least after its representative, credit? He certainly does. And that is the reason why a man who borrows capital is usually spoken of as a borrower of money. But his demand for capital, it should be noted, makes no difference in the relation between the volume of exchanges and the money supply. At a given time in a community there is a certain amount of money by means of which, with the aid of credit, these exchanges will be effected. Let us suppose that in a community the demand for capital is such that the rate of interest is 5 per cent and that certain men decide to build a railroad and borrow a large amount of the necessary capital, increasing thereby the demand for capital so that the rate of interest rises to 6 per cent. Has the demand for money been increased? Not at all. There has been no increase in the amount of wealth to be exchanged, and no increase in the volume of exchanges. The increased demand for "money" has raised the rate of interest and has given a new direction to the employment of capital, but it has not increased the number or volume of exchanges to be made. A certain amount of the lumber and iron in the community, instead of being sold to building contractors, has been bought by the new railroad company. Certain workingmen, instead of finding employment as formerly in various industries, have been employed in constructing the new railroad. An increase in the demand for capital may give a new turn to the employment of labor and may change the way in which wealth is consumed, but cannot add to the quantity of wealth to be sold or to the amount of money with which it is to be exchanged.

Although a demand for capital is not a demand for money or for credit, nevertheless an increasing demand for capital is usually accompanied by a change in the relation between money and goods, for it is usually attended by an expansion of credit and, therefore, by an upward tendency of prices. In our illustration we assume that certain men decide to build a railroad and begin to bid for capital and to hire laborers. Their operations will undoubtedly cause the prices of some goods to rise, for there will be an increased demand for all the raw materials which enter into the construction and equipment of a railroad. The advance in these prices will in some measure be counteracted by a fall of the prices of other goods, namely, those goods which would have been bought by the ordinary run of borrowers if the railroad men had not appeared in the field. The decline of these prices, however, may be checked by an expansion of credit. The construction of so important a means of communication as a railroad always excites the speculative imagination of people and gives rise to various schemes for the profitable employment of capital. The conditions which inspired the railroad promoters with confidence in their project are likely to exert a similar effect on other men, and stimulate an expansion not only of credit but of enterprise as well. Thus a growing demand for capital, instead of increasing the demand for money, is more likely to lessen that demand by rendering the supply more efficient. A proposition near the truth would be the following: An increase in the demand for capital often tends to increase confidence and so to lessen the demand for money by increasing the use of credit.

A demand for capital is not even a demand for credit as a medium of exchange; in other words, the increase in the demand for capital does not necessarily lead to an increase, or call for any increase, in credit as a medium of exchange. The borrowing of capital itself is, of course, a credit transaction. An increase in the demand may raise the rate of interest and so increase the amount of capital that is loaned. To that extent an increase in the demand for capital may be said to increase credit transactions, but there will be no need of increasing the volume of credit to be used as a medium of exchange, for a change in the demand for capital, while it will affect the rate of interest, will not affect the quantity of goods exchanged and will not necessitate, therefore, an increase in the medium of exchange of any sort, whether money or credit. In so far as it stimulates saving by lifting the rate of interest a growing demand for capital will lead to an increased production of wealth, making necessary larger bank reserves and a larger volume of currency in circulation. Thus an increasing demand for capital, while not itself a demand for money, may in the first instance lighten the strain on money by giving a stimulus to credit, and may later give rise to an increasing need for money by the stimulus it gives to the productive forces of a country; but neither of these effects is certain to follow.

Even in a country where credit is not used in any form as a medium of exchange, an increasing demand for capital would not involve a larger demand for money. In such a country, all exchanges being for money in hand, the borrower would get actual money from the lender, and it would seem that if the demand from borrowers increased the demand for money must increase. It is true that the borrowing demand for money would increase, but there would be no increase in the buying demand, that demand which determines the value of money. Lenders would have in their possession a certain amount of money, the product of their industry and saving, and they would seek to lend all of it; whether they could get 4 per cent or 8 per cent would depend on the strength of the demand for capital, i.e. the borrowing demand for money; but the demand for money which determined the value of money would in either case be the same, for manifestly no more goods could be bought with money borrowed at 8 per cent than with money borrowed at 4 per cent.

This rather abstract analysis of the demand for capital may seem unnecessary to the reader, but he will find later that much confusion has existed upon this subject in the minds of practical men, if not among theorists, and that this confusion has led to costly blunders both in legislation and in practice. The vocabulary of the "street" tends to perpetuate the confusion, for business men habitually speak of the rate of interest as the "price" or "value" of money. The notion that mere money will satisfy a demand for capital has a strong hold on the mind of the average banker. This explains why bankers in New York City, whenever there is a pinch in the loan market, usually appeal to the Secretary of the Treasury for aid.

## EFFECTS OF CHANGES IN MONEY SUPPLY

99. Except during a period of price readjustment, the supply of money in a country has no relation to the rate of interest. We have shown that the rate of interest — and the bank rate of discount as well — depends upon the supply of loanable capital and the demand for it, — that is, upon the amount of a country's savings and the demand for them for productive purposes. If the adjustment of prices is perfect, the supply of money not being increased except to meet an increasing demand, the rate of interest will be entirely independent of the amount of money in existence. The saving and productive capacity of a people, upon which the rate of interest depends, is not a product of the money supply, but of their thrift and energy and of the country's natural resources.

To illustrate: Let us suppose that a certain community is using as money a substance the supply of which increases at a steady rate, say 10 per cent per annum, and that the demand for money increases at the same rate, so that the level of prices remains uniform. Temporary fluctuations in the need for "hand-to-hand money," we will suppose, are met by changes in the volume of bank notes outstanding. In such a community the rate of interest would be absolutely independent of the money supply. In good times the rate of interest would rise, not because of any scarcity of money but because borrowers would be able and willing to pay more for the use of capital; the production of wealth would increase, more money would be needed as a basis for credit, and more currency to serve as a medium of exchange; but if the additional money and currency were at hand as needed, the adjustment of prices to values would be maintained, bank deposits and the supply of loanable capital would tend to become larger in proportion as the wealth of the community grew, and the demand for loanable capital would be the result of natural conditions, not of temporary conditions produced by arbitrary changes in the money supply.

In this illustration we have assumed that the adjustment of prices to the money supply is complete. This is an assumption we are not warranted in making with regard to any civilized country at the present time. Gold and silver are the money of civilization, and changes in their supply are never in perfect accordance with changes in the demand. During the last fifty years, on account of variations in the supplies of the precious metals, there has been no period when prices have had time to get into adjustment with the supply of money. It remains for us, therefore, to consider what influence changes in the supply of money, which render necessary a readjustment of prices, exert upon the rate of interest.

100. A temporary increase of the money supply in excess of the demand tends to lower the rate of interest temporarily; a temporary decrease of the money supply, the demand not also decreasing, tends to cause the rate of interest to rise.

We will first consider the effect of a temporary increase in the supply of money. Let us recur to our imaginary discovery of the fabled treasure of Captain Kidd, which we have supposed to amount to $100,000,000. After this gold has been rendered available for use as money, the country evidently has more money than is needed for the maintenance of the existing price level. The addition to the supply is something not necessary. No one, however, will think of that fact. The banks which receive the gold will look upon it as they have been in the habit of looking upon gold; that is to say, as money possessing a definite purchasing power. Their power to loan has been increased, but there has been no increase in the demand for loans, no increase in the demand for capital, and no increase in the supply of loanable capital. In order to bring out an increase in the demand the banks must make borrowing more attractive, and this they will do by lowering the rate of interest. First the "call loan" rate will be lowered and the speculators in New York who have been paying 3 per cent for money on call or on demand will be offered loans at 2 per cent and will increase their borrowings. Lower rates will also be offered to manufacturers and business men in general, and in the course of time, as described in the preceding chapter, this new gold will get into circulation, becoming the basis of additional credit operations, and creating apparently a new demand for goods. Prices will rise until in the course of time, in a few months or a few years, a higher level of prices will have been established, which will make necessary more money than formerly for the exchange of the same amount of goods.

Let us suppose that this higher level of prices is reached at the end of one year and that the rise amounts to 10 per cent. Evidently the man who formerly found $1000 equal to his needs for a given purpose or during a given season must now have $1100; the increased money supply is no more effective in making exchanges than the old supply had been, the rise of prices having created an equivalent increase in the need for money units. The banks, indeed, will have more money than they had before the new gold came, and their lending power in dollars will be 10 per cent greater than it was; other things being equal, the need for capital and the production of wealth not having changed, their deposits and their loans will in terms of money be 10 per cent greater, but this increase in money will represent no gain whatever in values. A man who wanted to borrow $1000 the year before will now need $1100 to accomplish the same purpose. He will find that the bank's power to accommodate him is exactly the same as it was; in other words, he will borrow $1100 with the same ease that he could have borrowed $1000 the year before; he will pay the same rate of interest, the reduction in the rate having been only temporary.

We have supposed in this illustration that the need for capital does not change during the year and that prices rise 10 per cent. Evidently the money needs of borrowers increase 10 per cent and the money in the hands of the banks increases 10 per cent. So the relation between the demand for loanable funds and the supply is not altered. Thus the final result of a temporary addition to the money supply is an apparent increase of the lending power of banks, but their real lending power is unchanged.

A temporary decrease of the money supply, if large enough to be appreciable, produces effects the opposite of those just described. If, in the course of a few months, $100,000,000 were arbitrarily taken from circulation in this country, the lending power of the banks would undoubtedly be greatly affected at first. National banks of this country always hold a considerable amount of lawful money which belongs to the government. Let us suppose that Congress should pass a law requiring that the banks should, within the next month, pay this money to the government and that it should hereafter be kept at Washington. In order to make these payments the banks all over the country would be obliged to call in loans and to refuse to make additional loans. Since the need for capital in the country would not have changed, the demand for loans would be in excess of the power of the banks to lend, and the rate of interest would rise to a high figure, only those borrowers being accommodated who could afford to pay the high rate. As a result, many enterprises would suffer from lack of funds. Speculation in Wall Street and on the produce exchanges of the country would be altogether on the "bear" side, for the calling in of loans by the banks would force speculators to sell their holdings at a sacrifice. Certain industries would be crippled, men would be thrown out of employment, and the sums of money distributed in the form of wages would diminish. The adjustment of prices to the diminished money supply would have a depressing influence upon various forms of business and industry, and would discourage *entrepreneurs*, thus tending to lessen the demand for capital.

The settling of prices would lessen the amount of money needed for the accomplishment of any particular enterprise, and the old relation between the demand for and supply of loanable funds would finally be restored. It is impossible to say how long a time would elapse before the price level would be properly adjusted to the supply of money, and the rate of interest again be normal. On the face of things it would seem that an arbitrary decrease in the supply of money, since it would make much capital idle and so tend to its destruction, would produce an effect from which the country would be long in recovering. The effect of an increase of the supply, on the other hand, would be a stimulus to industry, an increase in the power of banks to lend, and an increase for a time in the desire to borrow, and so in the demand for capital, which might work much harm through the stimulus it gave to speculation and to undertakings for which there was no real need. The effect, however, of an arbitrary decrease of a supply would seem to be much more injurious.[1]

101. A steady or continuous increase or decrease in the money supply not corresponding to changes in the demand, since it perpetuates a maladjustment of prices, produces a constant effect upon the demand for and supply of capital and so has a constant influence upon the rate of interest.

We will first consider the effect upon the rate of interest of a steady increase in the money supply, and will suppose that this increase is constant and a little in excess of the need for money, so that prices tend steadily upward. We shall find that such constant increase of the money supply will stimulate the demand for capital and tend to cause the rate of interest to rise above the normal.

We have already seen that the first addition to the supply of money will cause the rate of interest to fall temporarily and bring about an uneven uplift of prices, speculative goods rising first and retail prices last. All these price changes are attributed by people in general to an increasing demand for goods. Few business men suspect that their ability to sell goods at higher prices than formerly is in any way due to a change in the money supply. So far as the average man is concerned, the new demand for his goods is a real demand backed by sufficient money to support it. If the addition to the money supply is constant, particularly if it is gradual and steady, being made by monthly increments year after year, there will be a constant tendency of prices to rise, producers will find their profits growing, the demand for capital will consequently increase, and the rate of interest will rise. Men will not stop to consider the fact that the value of money has changed. To the business man a dollar is a dollar; he measures his prosperity in dollars; if the number of dollars into which he can convert his stock is increasing, he takes it for granted that his wealth is growing at the same pace.

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[1] An arbitrary increase or decrease of the money supply is one not called for by the demand, an increase or decrease which renders necessary a new adjustment of prices. Any change in the supply which corresponds to a change in the demand will not affect the price level and could not be called an arbitrary change.

As a result, therefore, of a steady upward tendency of prices and of the consequent increase of what may be called the "money wealth" and "money profits" of business and industry, men in business are eager to extend their operations. Newcomers rush into industry and business from the professional and other fields. Lawyers turn promoters for the development of oil fields or for the construction of street railways. Teachers and physicians abandon their callings and study the A B C of Wall Street. Preachers dabble in real estate or take up the schemes of eager and confident inventors. All this rush into the industrial field is accompanied by a strong demand for capital, and bankers, who are usually affected by the contagion of the time, find that they can extend their credit to the utmost limit at an unusually high rate of interest. In other words, the increase in money profits brought about by maladjustment of prices arouses an artificial demand for capital and so lifts the rate of interest above its normal level, or that which it would have held if prices had not been disturbed.

102. How long the industrial body can stand the effect of this money stimulant gradually administered experience alone can decide, and experience seems to teach the lesson that final disaster, however long deferred, is inevitable. It is certain that no mere change in the relation between the demand for and supply of money can produce changes in the wants of men sufficient to justify remarkable changes in the production of wealth. All this expansion of credit and abnormal demand for capital are usually attended by a confident popular belief that at last a period of good times has arrived which will have no end. Wild speculation ensues in this or that commodity, — in real estate, in railroad stocks, in wheat, in cotton, — and numerous enterprises are undertaken far in excess of the immediate

demand. Some morning a well-known firm or corporation whose ventures have entailed unusual risks is notified by its bank that some of its outstanding paper must be taken up. Unable to realize on its assets without great sacrifice, it calls upon some of its own debtors for payment, but they too are unprepared for immediate liquidation. The next morning the newspapers announce the firm's suspension, and rumor runs through the street crying that many other important houses are affected. The more timid creditors bring pressure to bear upon their debtors. Some large corporation fails and drags a bank down with it. Then there begins a general scramble on the part of all for the payment of debts due them. No man longer dare trust his fellow. Credit almost disappears from the business world, and prices fall with a velocity that brings ruin to every weak bank and business concern and to many others whose solvency, if no panic had come, would have been strongly buttressed.

During this collapse and panic the rate of interest rises to abnormal heights. There is now a scramble for loans, not for use in the production of wealth but for the payment of debts. After the panic is over and the wreck has been cleared away there will follow a period of dullness, and the rate of interest will be as much below the normal as it formerly was above.

If the money supply continues steadily to increase, the time will soon come again when men, tempted by the low rate of interest and by restored confidence in the country's resources, will once more make the round of borrowing and producing. In the meantime a new generation comes upon the field, lacking the experience of its elders ; again new enterprises are floated, and the cycle of unwise production, speculation, and panic is repeated.

103. A steady and continuous decrease in the supply of money, or its failure to increase as fast as the demand, tends to cause the rate of interest to fall. Such a decrease, whether absolute or relative, i.e. whether the supply has actually grown less or has merely failed to increase at even pace with the demand, must lead to a fall of prices, as was explained in

Chapter VI. The first effect, as described in Section 100, will be a lessening of the lending power of banks and an upward tendency of the rate of interest. There will be, in other words, what business men call a "scarcity of money," by which is meant a scarcity of loanable funds. Since at first no change will have been produced in the demand for funds, the borrowing demand will be undiminished and the banks will be able to get a higher rate of interest. Certain borrowers will be forced to abandon or to curtail their operations; of those who succeed in negotiating loans at the high rate of interest many will find themselves embarrassed when the time of repayment comes, for the prices of their goods will be lower than anticipated and their receipts of money will be smaller. As a result of these two circumstances — that some operations are abandoned or curtailed and that business men find difficulty in making repayment of loans — laboring men find increasing difficulty in getting employment at the old rate of wages, the amount of money and credit at the command of people will diminish, and retailers here and there will with reason complain that times are dull.

It must be remembered that the prices of goods do not tend to fall uniformly under these conditions, for the readjustment of prices is always a slow, uneven process. Often producers will find that the prices of their raw materials have not changed although the price of their product has fallen off. Such a situation is discouraging. Other producers find some encouragement in the fact that the prices of their raw materials have fallen, but the demand for their product has mysteriously weakened and they are forced to sell without the expected profit.

104. It is easy to trace the effect of such a condition upon the demand for capital or loanable funds. To the average business man the supply of goods seems already to be in excess of the demand. Instead of feeling like enlarging his operations, he sees a necessity for curtailment. Instead of talking about the construction of a new shop, he considers the advisability of closing his old one or of running half time in

order to "give demand a chance to overtake supply." Under these conditions there will be heard general talk about overproduction and excessive competition, and more men will be seeking to get out of business than to get in. In other words, the demand for capital will suffer a serious check on account of the depression caused by the gradual and not generally understood weakening of prices. Banks will find their lending power greater than the demand and will begin to lower the rate of interest in order to attract borrowers.

If these conditions continue for ten years or more, there will be intervals of reviving credit, rising prices, and temporary advances in the rate of interest. The production of wealth and the saving of capital will go on, but not at a uniform pace. Expanding credit may lift the prices for a year or two, and then they will drop to a lower level than they had reached before, and another period of depression and discouragement will ensue.

At such times, it should be noted, neither the banker nor the average business man will think of ascribing the hard times to any scarcity of money. The banks will be glutted with money and will be unable to find uses for it. The statistics of banks will give the impression that the country is burdened with an overplus of money as well as with an overplus of goods. But if the reader has followed the analysis, he will see that the real cause of the low rate of interest and of the excessive supply of cash in the banks is the weakening in the demand for capital which has been caused by the fall of prices. The disease from which, under these conditions, the business of a country is suffering should be diagnosed as industrial anæmia rather than as plethora of goods.

The reader must not conclude from this discussion that changes in the supply of money are the all-important factor in the determination of the rate of interest. The rate of interest, it must be remembered, is the outcome of the demand for and supply of capital, and these depend upon many circumstances, of which the maladjustment of prices is only one. It has been shown in this chapter that a single arbitrary increase in the supply of money tends to cause the rate of interest to fall, and that a continuous increase of the supply, since it artificially stimulates the demand for capital, gives the rate of interest an upward tendency; and that a diminution of the money supply has an opposite effect, the rate rising if the decrease is temporary, but tending downward if the money supply for any length of time fails to keep pace with an increasing demand. The whole truth may be summed up as follows: *The rate of interest depends on forces distinct from money, but with these forces changes in the relation between the demand for and supply of money are likely to interfere.*

105. In this connection the course of the London money market during the nineteenth century is of interest. London adopted the gold standard in 1816, the price level thereafter being determined by the value of gold. The world's stock of gold available for use as money was decreasing between 1810 and 1850, and we should expect during that period a decline in the London rate of interest. The statistics do not disappoint us. In 1824 the market rate in London was 3.5 per cent. The panic in 1826 made the average rate for that year 4.5 per cent. By 1833 the rate had fallen to 2.7 per cent. There was a slight rise in succeeding years, due largely to the expansion of credit. The panic of 1839 raised the rate to 5 per cent. Thereafter there was almost a steady decline until the panic year of 1847, when the rate rose to 5.9 per cent. In the next five years the rate almost steadily declined, until in 1852 the average rate was only 1.9 per cent. At this date new supplies of gold from Australia and California were making their way into Europe and the interest rate took an upward turn in London, being 3.7 per cent in 1853, 4.9 in 1854, 4.7 in 1855, 5.9 in 1856, and 7.1 in the panic year, 1857. The interest rate fell to 3.1 in 1858 and 2.5 in 1859, rates which were doubtless below the normal. In 1860 a rise began again, the rate being 5.5 in 1861 and 6.7 in 1866, the next panic year. Thereafter there was an immediate decline, the rate for 1867 being 2.3 and for 1868, 1.8. Then followed a slight advance of the rate until 1873, when the average rate was 4.5 per cent. Here set in a

gradual decline of prices due to what we have called a relative decrease in the supply of gold, the supply not increasing so rapidly as the demand. It was accompanied in London by a constant tendency of the rate of interest to fall, although there were occasional advances caused by the expansion of credit. The average market rate in London in 1894 was 1 per cent and in 1895 .8 of 1 per cent per annum. After 1895 the effect of the new gold from South Africa began to be felt in England and the interest rate again began an upward journey. Prices of commodities in England between 1896 and 1902 rose something like 25 per cent, and the rate of interest rose from .8 of 1 per cent in 1896 to 4 per cent in 1903.

Between 1897 and 1912 prices in the United States, according to the statistics of the Department of Commerce and Labor, rose some 50 per cent. In 1897 commercial (double-name sixty to ninety days) paper sold in New York around 3.5 per cent. There were only fifteen weeks during which it rose above 3.5 per cent, and it never went above 4.5 per cent. For sixteen weeks it did not rise above 3 per cent. In 1898 the rise of prices began and the rate of interest followed suit. It touched 5 per cent during nine weeks and 6 per cent during seven weeks. In 1899 it reached 5 per cent during twelve weeks and 6 per cent during thirteen weeks. During the period 1900 to 1904 the rate of interest averaged over 4.5 per cent, but a slight decline occurred in 1904. In the last quarter of the year it rallied somewhat and averaged 4.5 per cent during the last week. During the first half of 1905 the rate dropped as low as 3.75 per cent for some weeks. By the end of the year it rose to 6 per cent, however. During the period 1905 to 1909 it averaged practically 5 per cent, but this period includes the panic of 1907, when rates were abnormally high. The first quarter of 1910 had an average rate slightly above 4.5 per cent. The rate rose to an average of nearly 5.5 per cent for the third quarter and then fell to about 3.5 per cent by the second quarter of 1911. The average rate for the two years was slightly above 4.5 per cent.

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[1] Any conjecture with regard to the future course of prices and the interest rate must take into account a variety of forces. The efficiency of our money

106. It may seem strange to the reader that banks should have a large supply of money on hand at a time when prices are falling because of a relative decrease of the money supply. It would seem at first glance that abundance of money in the bank reserves would mean that money was plentiful. How can money be scarce when banks have more than they can lend? It is a fact, as can be affirmed by an examination of bank statistics of the United States between 1870 and 1896, that banks have more idle money on hand during a period of falling prices than they have during one of rising prices. This fact has often led at such a time to the assertion that money is abundant, and has often been pointed to as evidence that prices were falling not because of a scarcity of money but because costs of production were falling. Now abundant bank reserves do not signify an abundance of money but an abundance of loanable capital. It has already been pointed out that in a period of falling prices there will always be a surplus of capital, for the demand for capital will have fallen off. This surplus capital will find its way into the banks in the form of credit and money; it is natural, therefore, that in such a time the banks should have more money on hand than they can use profitably. This money in the banks has no influence whatever upon prices, for it is not in the hands of the people who can use it in the purchase of goods, and is not serving as a basis for credit. Business men have little desire to borrow and banks are timid about lending, the outlook being unpromising. The banks cannot use their money in buying goods, for that is not the way their profits are earned; they can only lend it, and satisfactory

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supply is rising slowly, but there seems to be a check in the increasing annual production of gold (see footnote on page 216). In this connection Professor Irving Fisher wrote in the *American Economic Review*, June, 1912, as follows: "In view of all the evidence . . . I am strongly inclined to the belief that the upward trend of prices will continue for many years. . . . Taking all things into consideration, the outlook for the next year or two in the United States would appear to be for a reduction of gold imports, a slackening in the growth of bank reserves and deposits; and an increase of money in circulation, both absolutely and relatively to deposits. . . . The net result will probably be a slight rise in prices. In short, the outlook is for a slight general expansion."

borrowers for it they cannot find. The large sums of money held by banks during a period of falling prices are not an indication of the plentifulness of money but of the opposite.

## Commodity Rate of Interest

107. The maladjustment of prices due to changes in the relation between the demand for and supply of money causes the money rate of interest to differ from what is called the "commodity rate." By commodity rate of interest is meant the percentage figured in goods instead of in money. The money rate and the commodity rate are always equal if the level of prices does not change during the life of a loan. Thus if a man loan $1000 at 6 per cent for one year, the $1060 which he receives at the end of the year will, if the price level has not changed, purchase 6 per cent more goods than he could have bought with the $1000 at the beginning of the year. His real wealth has increased 6 per cent; he is 6 per cent better off not only with respect to money but also with respect to goods. The commodity rate of interest on that loan is identical with the money rate. But let us suppose that the loan was made in the beginning of January, 1865, in the United States, in which year, according to the Falkner index number, the level of prices rose over 30 per cent. Was the lender who put out money at 6 per cent at the beginning of 1865 better off when he received $1060 in payment December 31, 1865? Certainly not. He had 6 per cent more money, to be sure, but on account of the 30 per cent advance in prices this $1060 which he received at the end of the year would buy less than he might have bought with the $1000 which he loaned at the beginning of the year. The purchasing power of each dollar had decreased on account of the advance of prices. What formerly could have been bought with $1.00 now required an expenditure of $1.30. Since 130 cents would buy no more at the end of the year than 100 cents would have bought at the beginning, a dollar at the end of the year would buy only $\frac{100}{130}$, i.e. 77 per cent, as much as it bought at the beginning of the year. In

that year, therefore, the dollar declined in value 23 per cent. Hence $1060 received by a lender at the end of the year would buy no more goods than could have been bought with 23 per cent less money at the beginning of the year; that is, he could buy no more than he could have bought with $816.20 at the time the loan was made. Evidently when we estimate his real wealth we find that his loan has netted him a loss and not a profit. He is something like 18 per cent worse off than when he made the loan. The commodity rate of interest, therefore, instead of being positive, a payment by the borrower to the lender, was negative, a payment of 18 per cent by the lender to the borrower.

A general fall of prices has the opposite effect upon the commodity rate of interest. If during the life of a 6 per cent loan general prices fall 10 per cent, the lender, when he gets back his principal and interest, is more than 6 per cent better off than he was when he made the loan. He has 6 per cent more money, and each dollar will buy 11 per cent more goods than each of the dollars he loaned. He is really, therefore, 17 per cent better off than when he made the loan. His rate of interest, figured in goods, is 17 per cent.

It would seem that the low commodity rate of interest realized by lenders during a period of rising prices would lead them to advance the money rate, and that the high rate paid by borrowers during a period of falling prices would tend to discourage borrowing and so cause the rate of interest to fall. As has already been pointed out, the rate of interest does tend to rise during a period of rising prices and to fall during a period of falling prices, but the reasons therefor are not to be found in the commodity rate of interest. Business men know nothing about the commodity rate of interest. They never speak of it and never take it into account. To them money is the all-important consideration and the money rate of interest always represents a real and positive return. The tendency of the rate of interest to rise during good times is not due to the fact that it must rise in order to give the lender a fair return on his capital, but to the fact that when prices are rising there is an increased desire on the part of men to borrow, — an increasing demand for capital. On the other hand, when prices are falling borrowers do not force down the money rate of interest because the commodity rate is high; they merely are less eager to borrow because the returns upon borrowed capital are less certain. During a period of falling prices the money rate of interest falls, not in order that an adjustment between the money rate and commodity rate may be brought about but because the demand for capital grows less.

## LITERATURE

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# CHAPTER VIII

## THE IMPORTANCE OF PRICE

108. "Price" is a more important word in the business world than either "value" or "utility." 109. Changes in the price level are important because of four circumstances: (1) the use of credit; (2) the fact that production involves a period of time; (3) the fact that prices do not change uniformly; (4) the psychology of confidence and depression. 110. An appreciating standard depresses industry, but it increases the purchasing power of bonds, annuities, wages, and salaries, and so apparently benefits both capitalist and laboring classes. The *entrepreneur*, however, is crippled, and other classes must suffer with him. 111. A depreciating standard seems to work injury to creditors, especially the bondholder and the annuitant, and to the salaried and wage-earning classes, while it apparently benefits the debtor and *entrepreneur*. The losses seem fully offset by the stimulus given to industry. 112. In a consideration of the desirability of a permanent standard of prices the production of wealth is of more importance than long-time relations between debtors and creditors. 113. A brief discussion of the multiple standard, the utility standard, and the labor standard. 114. The commodity standard now in use is a product of evolution, and will probably not be abandoned because of theoretical considerations. 115. A plan for the use of the multiple standard in the liquidation of loans.

108. It has been shown in the preceding chapters that the price of a commodity shows the value of money in that commodity, and that general prices indicate the general value or purchasing power of money; that the price of a commodity must change when there is a change in its own value or a change in the value of money; and that whenever there is a change in the value of money the prices of all commodities tend to be affected, but that they do not all change at the same time or in the same degree. In a country like the United States, with its numerous banks and well-developed credit system, general changes of prices begin first with those articles which are the favorites of speculators, like railroad stocks and such commodities as wheat, corn, oats, copper, lead, cotton, etc., and then run down through wholesale and retail prices and last of all touch real estate and customary prices. We have also seen that the maladjustment of prices caused by any great

change in the relation between the demand for and supply of money has a subtle but real effect upon industry and upon the rate of interest. In this chapter we shall consider the important relation of prices to human welfare.

In many treatises upon political economy the subject of price has received inadequate treatment. It has been commonly assumed that "value" and "utility" are the important words, and this assumption would be correct if there were always a perfect adjustment or correspondence between prices and values. If the value of money were stable, the question of prices would be far less important than it is, for changes in the prices of goods would always be due to changes in their value, so that the whole problem of exchange would be one of value rather than of price. A fall in the price of an article would mean a fall in its value, and the cause would lie in the conditions affecting the demand for and supply of the article. Mr. Mill in his *Political Economy* tacitly assumes that the value of money is stable and then proceeds to analyze the processes of production and exchange as if no money were used. According to his view goods were exchanged for goods, money being merely the medium for effecting the exchange and in no wise interfering with it.

If our conclusions are correct with regard to the effects of changes in the value of money upon prices, it must be conceded that in the world of business and industry, where wealth is actually produced and exchanged, the prices of goods are of more consequence than either their values or their utilities. It is true that price is an expression of value and that utility is at the foundation of value ; yet the only concept with which men are familiar, the one about which all of their thinking centers, is the concept of price. Men do not exchange goods for goods but for money. Either money or a contract to deliver money figures in every exchange. Men estimate their wealth and their profits in money, not in the quantity of goods which they can buy or which they already possess.

The level of prices, it should be noted, is itself of no importance ; it does not matter whether prices are high or low, if there is perfect adjustment between prices and the supply of money. Whether the value of the dollar shall be much or little, whether prices, in other words, shall be high or low, is of no more consequence than the question whether the mile shall contain ten thousand or five thousand yards. But *changes* in the value of a dollar, that is, changes in the level of prices, are of the utmost importance, for they are always attended by an irregular readjustment of prices. The question of high and low prices is entirely different from the question of rising and falling prices.

When prices are rising with more or less steadiness the monetary standard is called a "depreciating" standard; when they are falling the standard is said to be "appreciating," growing more valuable. Economists have generally held that the effects of a depreciating standard, if the rise of prices is not too pronounced, are less harmful than the effects of an appreciating standard. We have already in the preceding chapter had occasion to call attention to the remarkable stimulus to industry which follows from a steady and continuous rise of prices, and to the depressing effect of falling prices.

109. The disturbing effects of a change in the value of the standard are due to four circumstances, — (1) the use of credit, (2) the fact that production involves a period of time, (3) the fact that prices do not change uniformly, and (4) the psychology of confidence and depression.

It is evident that if men did not borrow and lend, a change in the level of prices would be less hurtful than it is. In our discussion of the commodity rate of interest it was shown that a change in the price level had a curious effect upon relations between borrower and lender; if the level of prices is rising, the lender receives back in real value much less than he loaned; while if the level of prices is falling, the borrower is obliged to return in real value much more than he received. If prices are falling, the borrower, in order to repay the principal, is obliged to sell more goods than he was able to buy with the money when he borrowed it.

A farmer who borrows money when wheat is one dollar a bushel is very much discouraged as the price of wheat falls, for his ability to pay his debt is steadily diminishing. He is injured very much as if he had borrowed one thousand bushels of wheat and were required to repay the loan in bushels of larger capacity. The farmer's case is no different from that of the man who borrows money or credit and engages in manufacturing. A certain time must elapse before he can turn the capital over and go into the market with his finished product. If in the meantime a change in the price level has occurred and the price of his product has been lowered, he will take in less money than he expected, his money profits will be small, and his ability to pay his debt will be impaired.

It is incorrect to argue that this *entrepreneur* and farmer are both just as well off with less money because the value of money has increased. They are not as well off. If prices fell uniformly, it would be evident to everybody that the purchasing power of a dollar had increased and that the fall of prices was due not to overproduction in this or that industry but to a change in the value of money, and men might learn to minimize the evil effects of such a change. But the fall is not uniform and is never ascribed by business men to changes in the value of money. Indeed, it is impossible to determine in any given case whether a fall of price is due to a fall of value in a particular good or to a rise in the value of money. The problem is so intricate and so many different influences are involved that a complete analysis of the causes in any particular instance cannot easily be made.

Furthermore a fall of prices, since it strikes first this commodity and then that, always catches the *entrepreneur* unprepared. Inasmuch as the wholesale prices are the first affected, he finds that his cost of living is the same as before ; the prices of some of his raw materials have declined, but others have not felt the change ; his laboring men insist upon the old rate of wages. He is obliged to sell at a lower level of prices than his money costs of production were based upon. It will not cheer him to tell him that money has increased in value and that the money he is getting for his goods will on the average buy more than the money he paid out. All his debts are money debts.

A definite sum of money is what he needs in order to keep on his feet. The thing he is interested in is prices, not values, and the inexplicable turn which prices have taken threaten him with ruin.

The psychological effects of a change in the price level are of the utmost importance. Very few men who engage in business or industry know with certainty what their profits are going to be. The production of wealth is always attended with risk. Men assume this risk, sometimes boldly, sometimes timidly. If times are considered good and the prices of conspicuous articles are rising, there is a general feeling of confidence that business ventures can safely be undertaken, and men engage freely in production. As a result of this confidence there is a larger production of wealth and the average purchasing power of every member of the community is increased. The industrial millennium would be reached if only this production could always be wisely directed ; that is to say, if men could always gauge the wants of their customers, if producers could foresee changes in the popular tastes and vary their production accordingly, for then the condition commonly described as overproduction would never ensue. The ability of people to buy would grow as the supply of goods increased. Unfortunately, however, it is impossible to gauge changes in the demand for goods, and industrial mistakes will doubtless continue to be made and to bring about the recurring periods of prosperity and hard times. But of the effect which the mental condition, the hopefulness, of a people has upon their productivity there can be no doubt. The business man is always discouraged by any loss which he cannot understand or explain, and his discouragement is communicated like a contagious disease to others. Likewise he is greatly stimulated by unexpected profits, and his new confidence is also contagious, stimulating his neighbors to enterprise.

Here we find perhaps the worst effects of a gradual fall of prices. Men do not and probably never will thoroughly understand the relation between money and goods. To them money is a thing of fixed and changeless value ; goods are what they make and sell, and changes in prices are always attributed to changes in the demand for or supply of goods. As a result, when a rising demand for money is not met by an increased supply, and the prices of commodities here and there begin to weaken, business men are unable to explain the phenomenon and are puzzled and distressed. The practical man usually attributes such a fall of prices to excessive competition and overproduction. During the last twenty-five years of the nineteenth century these two phrases were in every one's mouth in explanation of the heavy prices and vanishing profits of that period; and many a young man was advised to keep out of business and enter one of the professions on the ground that business was "overdone"![1]

### Effects of Changes in the Price Level

110. An appreciating standard depresses industry and causes a lessening of the demand for capital, but it increases the purchasing power of bonds, annuities, wages, and salaries, and so apparently benefits both the capitalist and the laboring classes. We have already described its effect upon industry and upon the demand for capital. The laboring man seems to be benefited by a fall of prices for the reason that wages are the last thing to be affected in the readjustment of prices caused by an appreciation of the gold standard. A general fall of prices, unless the efficiency of labor greatly increases at the same time, must sooner or later bring about a corresponding decline in the rate of wages; but this decline, experience shows, does not come until after the change in the value of the standard has affected the prices of most goods. It would appear, therefore, that the laboring man, for a time at least, gets the old money rate of wages and is able to buy more comforts and luxuries than before; in other words, he is earning as many dollars as formerly and each dollar exchanges for more goods.

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[1] A successful merchant in Chicago, who was a devout church member, told the writer in 1880 that he intended to send his two boys to college and make lawyers or doctors of them. "Competition is so fierce nowadays," he said, "that a business man can't be a Christian and succeed." The boys, however, chose the father's business and since 1897 have made their fortunes.

The capitalist class seem to be benefited by a fall of prices in so far as their investments are in bonds, mortgages, leaseholds, and annuities, which yield a fixed money income. Also as lenders of capital for short periods they appear to be gainers; although the money rate of interest tends to decline, yet the commodity rate is high and the purchasing power or value of the lender's principal is steadily increasing. But as owner of goods or property the capitalist derives no benefit from the shrinkage of prices; to the landlord as to the business man, the shrinkage of prices seems a shrinkage of values.

If we analyze the benefits received by the lender of capital, the bondholder, the annuitant, and the laboring man, we shall find that they are more apparent than real. The benefit derived from a fall of prices by the owner of bonds, mortgages, and leaseholds is short-lived. The prices of bonds usually rise during a period of falling prices, there being an increased demand for them, not only from men who had formerly been bond purchasers, but also from men who had formerly been engaged in business. As the returns from industry decline men begin to withdraw from business and seek to invest their capital in some fixed form. Consequently the prices of bonds tend to rise, and the capitalist is obliged to invest his new capital and reinvest his old at disappointing rates of income. But the capitalist class are owners of more than bonds and leaseholds; they are the owners of the capital stocks of railroads and industrial corporations, and the dividends on these always fall off during a period of declining prices.[1] The rewards of capital come from industry, and any cause depressing that is certain sooner or later to lessen the income of the capitalist class.

In like manner we find that the advantages of falling prices to the wage earner or salaried man are more apparent than real. Wages and salaries, like the rewards of capital, are paid out of the fruits of industry. If these are declining, the total sum paid in wages and salaries must decline. There can be no escape from this conclusion. It would follow, therefore, that a fall of prices benefits only those who continue to receive wages and salaries after the fall has begun. During such a period, as we have seen, industrial establishments curtail their operations and discharge part of their force, and business houses reduce their expenses by cutting down the salary list as much as possible. The wage rate is not at first lowered, but the number of men who have employment is reduced. Viewing the salaried and wage-earning class as a whole, therefore, we cannot say that a general fall of prices is an advantage. It helps only the favored few who are able to keep their positions.

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[1] Between 1880 and 1897 over 75 per cent of the railroads in the United States passed into the hands of receivers, the stock in many cases being wiped out. This era of corporation bankruptcy, which cost capitalists or investors many hundred million dollars, was not altogether the product of excessive capitalization, as is often taken for granted. During that period the general price level declined some 40 per cent. Railroads were forced to reduce their rates, and their money incomes declined. Their money indebtedness had been fixed by issues of long-time bonds and could not be correspondingly reduced.

The professions are variously affected by a fall of prices. It may be regarded as an advantage to teachers in the public schools and in colleges, for their salaries come out of taxes and invested funds and their tenure of office is comparatively secure. The purchasing power of the preacher's salary is also increased, so that he is better off. Apparently the position of the doctor and lawyer is improved, for their money fees are not immediately affected by any change in the value of money. It should be noted, however, that the doctor's clientele will have less money to spend and so will probably call less frequently for his services, and that his charity list will be liable to increase. Lawyers' fees will be more difficult to collect ; yet the lawyer is fortunate in that his services continue to be in demand even when times are hard. As for the preacher, even he is fortunate if he escape loss, for contributions for support of the churches are obtained with increasing difficulty. Furthermore among all the professions competition tends to become greater because the certainty of income they seem to promise is immensely attractive in a period of depression.

111. A depreciating standard seems to work injury to all creditor classes, especially the bondholder and annuitant, and to the salaried and wage-earning classes, while it apparently benefits the debtor and *entrepreneur*. A steady rise of prices,

unless wages and salaries advance at equal pace, evidently lessens the real value of wages and salaries and makes the income from bonds and annuities of less and less consequence to the recipient. A little analysis, however, will show that this hurtful effect of rising prices is more apparent than real. As has been shown, a gradual rise of prices tends to be accompanied by a rise of the rate of interest and by increased industrial activity. While salaries and wages do not rise at an equal pace with prices, nevertheless there is an increased demand for labor, more men have employment, and increasing quantities of money and credit are distributed in wages and salaries. The production of wealth is increased and a greater share goes to labor than formerly. There are undoubtedly many cases where individual members of the wage-earning class suffer loss through the failure of their incomes to increase as prices rise, but the class as a whole is benefited, for the number of unemployed is immediately reduced.

To the owner of capital who is able to change his investments and take advantage of new conditions it is not at all certain that a depreciation of money brings any loss. Since the production of wealth is stimulated, the share going to the owner of capital should surely increase. As the owner of bonds, he certainly seems at first to suffer loss, for these usually fall in price at the outset. The rising rate of interest and the brilliant prospects of industrial enterprise make bonds, with their fixed rate of income, less attractive than stocks, which rise in price at such a time and upon which the rates of dividend rise. The prices of bonds, therefore, instead of advancing on account of an increasing money supply, usually tend downward. While the bondholder must sell at some sacrifice, he finds full compensation in the rising dividends from stocks and in the higher rate of interest on his loans. He must, like all other men, beware of the evil day when, confidence having become rashness, men scatter the seeds of capital over stony ground and seek to mortgage an imaginary crop. That day of panic, born of excessive speculation and of misdirected effort, cannot be wholly charged up to the depreciation of money; it is quite as certain to come when an appreciation of the standard is lowering the price level, and would doubtless be on the calendar of industry even though men used an ideal money incapable of great appreciation or depreciation.

As an owner of real estate the capitalist is at first hurt by a depreciation of money, for the price of real estate is slow to respond to changes in the value of money. Instead of advancing in price on account of a relative increase in the supply of money, real estate not infrequently suffers a decline; sometimes, indeed, it advances in price while general prices are falling, and then takes its turn in declining after prices have begun to rise. This is a peculiarity of prices which is not difficult to understand. Income from real estate is often fixed for long periods by leases and so cannot be quickly changed to correspond with changes in the returns from industry. An upward tendency is very quickly given to rents in the cities, but the rents of farms and residences are slow to rise. A man who is getting 5 per cent for an investment in real estate congratulates himself when times are hard and business failures are numerous, but when times change and he sees his friends making 15 or 20 per cent in business, his 5 per cent investment in real estate does not satisfy him and he is anxious to sell.

To people entirely dependent on fixed incomes a depreciation of money is undoubtedly a serious matter. All incomes from real estate, leaseholds, annuities, and pensions undoubtedly suffer, and there is little chance of recompense. During the great rise of prices in the seventeenth century, consequent upon the production of precious metals in the New World, many thousand families in Europe were severely crippled by the decline in the purchasing power of their incomes. Adam Smith estimated that prices rose between 200 and 300 per cent between the middle of the sixteenth and the end of the seventeenth century. This rise of prices was the cause of much privation and loss among all those families whose incomes had been fixed by contracts extending over long periods.

At the same time these two centuries were the most remarkable in the history of the civilized world. It was the period in which modern industrial civilization was born, and the production of wealth increased at a pace unprecedented. Some writers even attribute the great stimulus given to industry during these centuries to the influx of precious metals from the New World. We must beware of attributing any important event in history to a single cause, yet the student of money who has considered in all its bearings the relation of money to industry and to human welfare can be forgiven for inclining to the belief that the stagnation of the Middle Ages was due in some measure to the scarcity of the precious metals, and the prosperity of the succeeding centuries to their abundance. Price is so important a concept and plays so large a part in the affairs of men that any derangement or maladjustment of prices, due to continuous breaks in the relation between the demand for and supply of money, cannot fail to have an important effect upon the material welfare of man.

### Industry the Important Consideration

112. In discussing the stability of the standard most writers have assumed that its chief importance grows out of the possible injustice to the debtor or creditor classes, wrought by appreciation or depreciation. As we have seen, a fall of prices imposes an extra burden upon the debtor, while a rise of prices robs the creditor of real value. These are undoubtedly important considerations, but they are not the most important. The worst effects of a change in the value of the standard are in the field of production. A depreciating standard tends to an overstimulated production and may lead to an unwise use of capital and labor. An appreciating standard, on the other hand, tends to discourage the production of wealth and so to bring hardship upon all. It is this effect upon production which makes the question of price an all-important one. Money is much more than a mere go-between or messenger, and cannot be left out of account when considering the forces that direct the productive efforts of men, for changes in its value are universal in their effect.

Imagine the confusion that would result if an average modification of the English language, amounting to 5 per cent of its vocabulary, should take place during a certain year, the changes not being the same in degree in all families and all communities. One might still call a horse a horse, while another knew it as a "bucephalus." A man might try to buy shoes of a storekeeper who knew them only as "footings." Even if the change in the language were uniform, all our written literature would gradually become obsolete and unintelligible; but if the change were not uniform, the smooth and easy exchange of everyday ideas would suffer amazingly. Just as language is a medium of exchange of ideas, so is money a medium of exchange of goods and services. Money performs its work by virtue of its exchangeability, and like language is in common use. Universal aphasia would have very much the same effect upon conversation that fluctuations in the value of money have upon the production and exchange of wealth.

## Different Standards Considered

113. In recognition of the fact that changes in the price level alter the relation between debtor and creditor, economists have discussed somewhat the question of an ideal standard of deferred payments. The subject is mainly of theoretical interest at present, for there is little likelihood that practical men could be persuaded to adopt an ideal standard, even if one could be devised. As yet, however, there is no agreement among the theorists. It is agreed that stability is essential to an ideal standard, but in respect to what should this stability exist? Upon this point there has been much discussion. Let us consider briefly some of the different views.

The oldest plan to preserve a just relationship between debtor and creditor, despite fluctuations in the value of money, is known as the *multiple* or *tabular standard*. This assumes that an ideal standard should possess stability with respect to goods. A man who lends money parts with a certain quantity of purchasing power, that is, he surrenders command over a certain quantity of goods. The multiple standard provides that when the debt is paid he shall receive as principal the same quantity of purchasing power, and so be in respect to goods as well off as when he made the loan. In order that this result may be achieved, it is proposed that a government commission shall make weekly or monthly estimates of changes in general prices, and that the amount of money necessary to cancel a loan shall vary as these estimates vary. The commission would select a hundred or more representative commodities and from the prices of these compute an official index number, changes in which would be assumed to reflect changes in the value of money. Suppose that during the life of a certain loan this index number rose from 100 to 110; this would mean that $110 at the end of the period was worth in goods no more than $100 had been worth at the beginning, and hence that the debtor should repay as principal a sum of money 10 per cent larger than the sum he borrowed. On the other hand, if during the period the index number of prices fell from 100 to 90, an increase in the value of money would be shown and the debtor would repay in money 10 per cent less than he had received.

Some writers have held that an ideal standard of deferred payments should be based upon utility, since utility, the power to satisfy human wants, is the source of all value. No practicable plan for the adoption of a *utility standard* has been presented, but it is held theoretically that exact justice between debtor and creditor cannot be obtained except under a standard based on utilities rather than on goods. According to this view an ideal monetary unit would always represent the same amount of utility or satisfaction. From generation to generation the standard of life has been rising. At the present time men do not get the same satisfaction out of a tallow candle that their grandfathers did. Candles, therefore, ought to be lower in price. A carpet means much less to the average American family than it did fifty years ago. So does a piano, a stove, or a pair of shoes, or a rocking-chair. If changes in the value of money are to record changes in the utilities of goods, then the prices of goods ought to fall as their relative importance to men decreases.

A third standard is known as the *labor standard.* Since all goods are the product of human labor, it is held that a perfect money is one that will always buy the same amount of labor. According to this standard the money wages of labor would always be on the average the same, but as civilization advanced and machinery made labor more productive there should be a steady fall of prices due to the increasing value of human labor. This fall of prices, it is held, would injure nobody, for each man through the fall of prices would get the benefit of his increased productivity even though his money wages did not increase.

114. The standard now in use throughout the civilized world is the *commodity standard.* Gold and silver are the world's money metals, and in nearly all countries one or the other is used as the standard of deferred payments. Under the commodity standard the borrower returns the same commodity, or the same quantity of it, which he borrowed. This standard, as we have seen, is far from ideal. If a man borrows a thousand dollars when prices are high and makes repayment when prices are low, he gives the lender a greater command over goods than he possessed when he parted with his money. And unless the total sum of utilities is greatly increased, he gives the lender command over a greater number of utilities — a greater amount of pleasure or satisfaction — than he possessed when he made the loan. If wages meantime have fallen, he gives the lender command over a greater amount of human effort.

The subject of an ideal standard has had for some time and is likely always to have a theoretic interest. Whatever may be thought of the justice or injustice of the commodity standard, it is the one which the world has unconsciously adopted, and no amount of theorizing about its defects can bring about an immediate change. Speculation about the desirability of a utility standard or a labor standard is likely to be as futile in the field of money as speculation about Volapük has been in the field of language. The English language is full of imperfections familiar to every scholar. Countless improvements in construction, vocabulary, and orthography have been suggested, but there is no power strong enough to make the people adopt them. Nor can the character of money be changed as a result of the discovery of imperfections in the money that is now in general use.

115. The general use of the multiple standard in the liquidation of loans would save the producer from some of the evil effects of rising and falling prices. Rising prices would increase his money profits, but his money indebtedness would increase at the same time; and so the artificial stimulus given to industry by rising prices would be counteracted in some measure. It would not be altogether nullified, however, for the profits made by men employing their own capital would not be affected. In the case of falling prices the multiple standard would save the producer from considerable discouragement, for as the prices of his goods fell, and his profits declined, the amount of his money indebtedness would also grow less. Here also the partial use of this tabular standard would not destroy all of the evil effects of an appreciating standard, for the men doing business on their own capital would get no relief.

This device is practicable, but we may well doubt its general adoption. The utmost we can look for is the creation by Congress of a statistical commission for the daily or weekly calculation and publication of an official index number. If a law were passed providing for the publication of such a number and enforcing its use in the case of all credit instruments where it had been agreed upon by both lender and borrower, it is possible that the merits of the multiple standard might bring it into favor, particularly in the case of long leases and mortgages. It is doubtful, however, if banks and business men in general would take time to make the necessary calculations. Men are not yet awake to the importance of guarding themselves in ordinary business transactions against losses from subtle and unforeseen changes in the value of money. When prices are rising men are usually too busy making money to be concerned about any question of justice as between debtor and creditor; the borrower is complacent over his unexpected profits, and the lender over the rising rate of interest. On the other hand, when the price level is declining all the influence of the so-called "moneyed" classes is opposed to any arbitrary scaling of debts, while borrowers are prone to view with satisfaction the falling rate of interest.[1]

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[1] The use of the phrase "commodity standard" in this chapter is criticised by Professor A. Piatt Andrew (*Political Science Quarterly*, December, 1906) on the ground that in economic literature it "has come to refer to a currency standard that has a stable value in exchange for commodities." In most books, as in this, such a standard is designated the "multiple standard."

When a single commodity like gold is freely coined, the values of the commodity and of money are practically the same. The author, having found in the books no phrase describing generically such a standard, calls it the "commodity standard." Possibly "single commodity standard" would be better.

# CHAPTER IX

## COMMODITY OR METAL MONEY

116. Gold and silver the only metals now used as commodity money. 117. The free coinage of a metal is essential to its use as commodity money. "Seigniorage" and "brassage." 118. When the free and gratuitous coinage of a metal is permitted an ounce of the metal coined can never be worth much more or less than an ounce uncoined. 119. The value of commodity money (gold in the United States) is the product of a double demand, — the demand for it for use as money and the demand for it in the arts. 120. Error of statement that the value of money in the United States is derived from the value of gold. 121. The true relation between gold and money is obscured by the fact that gold has no price. 122. Free coinage gives to a metal practically all the utilities of money. 123. The free coinage of a metal increases the demand for it. 124. The statistics of coinage do not indicate the full effect exerted upon the value of gold by the monetary demand. As gold rises in value a given quantity satisfies a larger monetary demand. 125. A seigniorage charge raises the value of the coin above that of the bullion. Under a system of free coinage the imposition of a seigniorage tax, even though the seigniorage is coined, will not lead to a rise of prices. 126. A seigniorage of 100 per cent would yield paper money regulated in value by the value of gold. 127. The effects of seigniorage illustrated in France. 128. The advantages and disadvantages of seigniorage. 129. The principles governing the use of commodity money apply to silver as well as to gold. The silver standard in Mexico. 130. Gresham's law: Whenever the bullion in the coin is worth more as bullion than as money, the coin will either be melted for use in the arts or be exported as bullion to a foreign country. 131. The supply of commodity money is regulated automatically through the medium of price and the rate of interest. 132. A silver price level is unrelated to a gold price level. 133. Credit money is often coined from metal. 134. The law of legal tender as applied to gold and silver.

116. As explained briefly in Chapter II, the world has had experience with two kinds of money, — commodity money and fiat money. The difference between these two is not fundamental; the nature and principles of money, the laws governing its value and use, are the same whether money is made out of a valuable material like gold or out of a comparatively valueless substance like paper. The difference between fiat and commodity money is found only in the method whereby the supply is regulated. In the case of commodity money, a certain

commodity being freely used as money, the supply is regulated automatically, being subject to conditions affecting the supply of the commodity used; whereas the supply of fiat money is regulated artificially.

Many different articles have served as commodity money. Tobacco was at one time money in Virginia. Wampum served the Indian and the early settlers of this country as money. Even copper and iron were once used as money. The Greeks of the heroic age are supposed to have used cattle as money, but this is probably an error. The ancient Greeks used iron and copper as money or as a medium of exchange, and employed cattle merely as a money of account, a steer being valued at a definite amount of the common medium. This use of the steer by the Greeks was similar to the present use of the guinea in England or to the use of the old York shilling in some parts of this country during the first half of the nineteenth century. There is no coin known as the guinea, but English shopkeepers find it a convenient name for twenty-one shillings. In the same way the ancient Greeks doubtless found it convenient to express large values in terms of cattle instead of in large sums of their clumsy coin.

At the present time metal money consisting either of gold or of silver is the only form of commodity money in the civilized world. These metals have been found by experience to serve the purpose better than other metals or than any other commodity. Their beauty, their indestructibility, their portability, their great value in small bulk, first made them universally desired and so gradually led to their use as a medium of exchange and standard of prices. On account of their homogeneity they are easily tested and are readily converted into coins of convenient sizes.

Gold and silver are supposed, on account of their relative scarcity and high cost of production, to possess greater stability of value than most other commodities, but it is doubtful if they possessed this superiority before they were used as money metals. Their present comparative stability is due to the fact that the mass of each metal in existence in the form of coin and bullion is so large that the relatively small annual increment from the earth's gold and silver mines does not greatly affect its value. If silver and gold had not for many centuries been used as money, no large mass of either metal would exist in a form available for various uses; the output of each year would have been promptly devoted to artistic and industrial uses, and the value of each would fluctuate from year to year, responding sensitively to slight changes in the quantity produced.

117. The free coinage of a metal is essential to its use as commodity money. By the free coinage of a metal is meant its free use as money by all persons, the government converting into coin all the metal brought to it. The monetary unit in the United States, for example, is the dollar, a gold coin containing 25.8 grains of standard gold.[1] Any person owning gold may have it coined at a United States mint.

The coinage of gold in this country is not only free, i.e. open to all persons, but is also gratuitous, the expense of mintage being borne by the government. But a person bringing gold to the mint must pay for the necessary alloy, for the refinement of the metal, and for its conversion into bullion, which is the technical name for standard gold ready for coinage. These expenses are sometimes known as the "brassage" charge.

In England and the United States brassage is the only expense paid by private persons, but in most other countries a further charge known as "seigniorage" (the seignior's or lord's share) is exacted. In France, for example, the free coinage of gold is permitted, but the coinage is not gratuitous, for out of every 3100 francs coined the government retains $7\frac{4}{9}$ francs as seigniorage. In the United States,[2] if a man take standard gold to the mint, he is entitled to the same weight of gold in the shape of coin; but in France and several other countries, on account of seigniorage charges, the coins received weigh less than the bullion that is delivered to the mint.

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[1] The gold dollar, having proved too small for convenient use, is no longer minted. Gold is coined into two-and-a-half-, five-, ten-, and twenty-dollar pieces.

[2] Freedom of coinage in the United States with respect to both gold and silver was granted in the law of 1792, as follows: "That it shall be lawful for any person or persons to bring to the said mint gold and silver bullion in order to their being coined; and that the bullion so brought shall be there assayed and coined as speedily as may be after the receipt thereof, and that free of expense to the person or persons by whom the same shall have been brought. And as soon as

### Relation between Coin and Bullion

118. When the free and gratuitous coinage of a metal is permitted, an ounce of the metal coined can never be worth much more or less than an ounce uncoined. An equivalence of value between coined and uncoined bullion is established by freedom of coinage. Thus free coinage of a metal practically makes the metal itself money, the metal varying in value with every fluctuation in the value of the coins made out of it. In the United States, on account of the free and gratuitous interchangeability between gold bullion and gold coin, gold bullion is regarded as practically the same thing as money, although technically the coins alone are money. As a matter of fact, we are using gold as money exactly as did the ancients before the days of coinage, except that in olden times delicate scales for the weighing of gold dust was part of every merchant's equipment, while improvements in the art of coinage have substituted for the scales the stamp of the mint. In the United States, and in most other countries where gold is freely coined, banks count the gold bars in their vaults as part of their money reserve. In a country where the free coinage of silver prevails, silver bullion is in the same way prized as money.

119. The value of gold (or any commodity freely used as money) is the product of a double demand, — the demand for it for use as money, and the demand for it for use in the arts. Gold possesses two separate utilities, that is to say, it is wanted for two separate and distinct purposes. Its value is the result of this double demand. A certain portion of the world's gold

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the said bullion shall have been coined, the person or persons by whom the same shall have been delivered, shall upon demand receive in lieu thereof coins of the same species of bullion which shall have been so delivered, weight for weight, of the pure gold or pure silver therein contained." In 1873 the free coinage of silver was suspended.

supply is appropriated for use as money, and a certain portion for use in the arts, and its value must tend to rise whenever the demand from either source is increased.

The value of money in the United States, for example, is determined by two sets of demand and supply conditions: (1) directly, by demand for and supply of gold coins in the United States; and (2) indirectly, by the demand for and supply of gold throughout the world. The reader will observe that no exception to the law governing the value of money is here involved. Automatically, through the operation of self-interest among men, the supply of gold coins is so regulated that their value coincides in the long run with the value of the gold bullion of which they are made. The following diagram illustrates the relation between gold as bullion and gold as money. Here we have two hundred and fifty-eight grains of standard gold both in the form of bullion and in the form of a ten-dollar gold piece. The value of the bullion depends upon world conditions of demand and supply; that of the coin depends on the money demand and supply in the United States. Although entirely

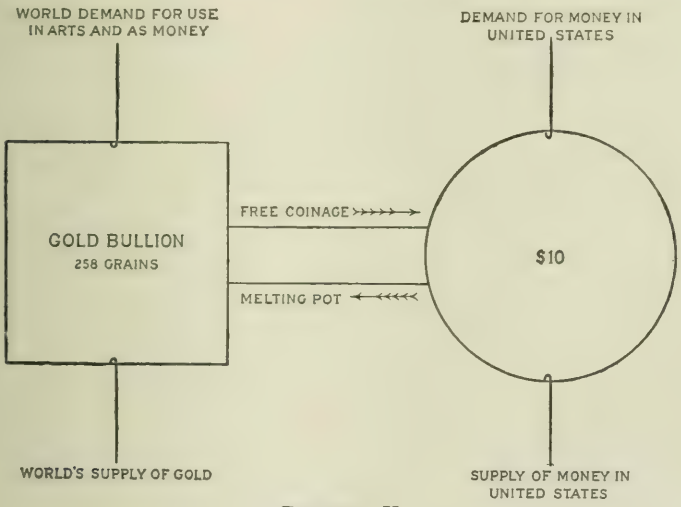
WORLD DEMAND FOR USE IN ARTS AND AS MONEY
DEMAND FOR MONEY IN UNITED STATES
GOLD BULLION
258 GRAINS
FREE COINAGE
MELTING POT
$10
WORLD'S SUPPLY OF GOLD
SUPPLY OF MONEY IN UNITED STATES

Diagram V

different conditions govern the values of these two things, the value of the one must always nearly equal that of the other, for the one can be converted into the other without cost to the person making the conversion. When the conditions governing the value of money in the United States lift its value above that of the bullion, more bullion is coined and the value of money is lowered by the increase in its supply. The supply of available bullion is at the same time reduced and its value correspondingly raised. On the other hand, if the demand for gold as bullion lifts its value above that of the coin, an equilibrium is effected by means of the melting pot.[1] The coin and bullion, it should be noticed, do not always possess exactly the same value; if they did, no bullion would ever be coined, and no coins would ever be melted down.

120. It is frequently said that the value of our money depends on the value of gold. It should be noticed that this statement is only a half truth, for it is equally true that the value of gold depends upon the value of money. Gold, as we have said, gets its value from a double demand, and its value will tend to increase whenever there is an increase in either demand. Some writers talk about what they call the commercial value of gold, or the value of gold in the markets of the world, as if that were something quite independent of its monetary value, and as if this commercial value fixed the values of gold coins. The so-called "commercial value" of gold and silver is in reality the product of the demand for those metals for use not only in the arts but also as money. Any increase in the demand for money in Europe or in the United States will tend to raise the commercial value of gold; and any increase in the demand for money in China will tend to raise the commercial value of silver. The value of money is not in any sense derivative from that of gold; yet under a system of free coinage

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[1] The "melting pot" in this section serves to include all methods of withdrawing gold from use as money when its value as bullion exceeds its value as coin. It includes, therefore, the exportation of gold, which, as shown in Chapter V, is always evidence that it is worth more as bullion abroad than as money at home. When gold coins are packed in bags for export, they are essentially reduced to bullion as much as if they had been melted.

any increase in the supply of gold will cause an increase in the supply of money, so that the values of gold bullion and money will fall together; and, conversely, if an increasing demand for money raises its value, the value of gold will be lifted at the same time.

Practically all the gold mined in the United States (some $50,000,000 in 1921) is turned over to the government mints, the owners receiving immediate payment in gold coin or in checks convertible into cash. It does not follow, however, that all the new gold is absorbed by the demand for money. Government officials have learned by experience that the coinage of all the gold received involves needless expense, for a certain portion of it is always wanted in the shape of bullion bars. Therefore the government converts some of the country's new gold into coin, some into exporters' bars, and some into so-called jewelers' bars. It is estimated that the industrial or manufacturing demand for jewelers' bars absorbs about 20 per cent of the annual output in this country; all the rest becomes money, for exporters' bars are counted as money both in the vaults of the national Treasury and in the reserves of banks. If the demand for gold in the arts increases, its value tends to rise, and the proportion of the whole supply coined into money is diminished, an upward tendency at the same time being given to the value of gold coins or money.

121. The truth as to the relation between the value of gold as money and gold as bullion is not easily seen for the reason that since gold has no price variations in its value cannot be measured in the ordinary way. Its so-called "price" is always $20.67 per fine ounce, or $18.60 per standard ounce, and that price is the same whether for bullion or for coins. How, then, can there be any difference between the values of the two? The reader can easily answer this question unaided if he will bear in mind the obvious fact that the "mint price" of gold furnishes no indication whatever as to the value of gold. Gold is no exception among commodities. Wool, for example, may be said to be subject to a threefold demand, being wanted by the manufacturers of knitting yarns, of clothing, and of

blankets. Its value is derived from those articles, and will vary as the demand for them varies. The quantity of wool that is converted into each of these commodities is determined by the demand for and value of each. If war increases the value of blankets, then blanket manufacturers will outbid the others and obtain a larger share of the world's stock of wool than usual; on the other hand, if fashion dictates a larger use of woolen clothing, then the bidding from manufacturers of cloth will raise the price of wool and a larger share of the stock will go to them. There is no such bidding for gold in the markets of a gold-standard country, but exactly the same competition for the stock of gold is carried on between the arts demand and the money demand. On the one side are the manufacturers of jewelry, gold plate, etc., and the strength of their demand depends on the popular demand for articles made of gold, their profits tending to increase as that demand increases. On the other side are the whole people bidding for gold by their offers of goods for money, their bids rising in proportion as they lower the prices of their goods, and falling as they raise the prices of their goods.

### VALUE OF THE METAL INCREASED

122. Free coinage gives to a metal practically all the utilities of money. We have seen that in the United States, on account of a law which permits the free coinage of gold, the value of an ounce of gold when uncoined is practically the same as its value when coined; and that on this account people naturally look upon gold itself as money. To the average man gold is the one thing which never changes in price; he thinks of an ounce of pure gold as at all times worth $20.67, for that is the sum of money into which he can have it coined at the mint. So he prizes an ounce of gold just as he would prize $20.67. He is right in his thought that the two things are practically the same, but he is wrong in supposing that $20.67 is the price of gold; an ounce of pure gold when coined is $20.67; that ($20.67) is simply its money name, just as "ounce" is the Troy weight name. Because gold may at all times be converted into a definite

sum of coined money, its value being practically the same when coined as when uncoined, the metal possesses for most people a peculiar fascination, and is regarded as something totally unlike all other metals. A man with uncoined gold in his possession feels that he has something as good as money itself; it does not possess the same ready exchangeability, for scales and tests are needed, but it possesses the same value or purchasing power and can with little trouble be converted into coin.

123. The free coinage of a metal into money increases the demand for it. This proposition follows logically from the preceding one. Since the free coinage of gold gives to it the utilities of money, it is now wanted on account of these utilities as well as on account of what may be called its art utilities. If the world were not using gold as money, the demand for it would come entirely from the arts; this demand, due to the beauty of gold and to its use by dentists and in certain trades, would be the only demand it would fill. Its value would be fixed solely by its art utilities. But free coinage gives it a new utility, the money utility, and the demand for it is thereby increased. The value of gold at the present time, therefore, is greater than it would be if it were not freely coined into money.

124. It is impossible to determine what proportion of its value gold derives from its use as money, for we cannot make accurate comparison of the monetary and nonmonetary demands. Since only about one fifth of the new gold mined each year is now absorbed by the arts, we may justly infer that the monetary demand is at least four times greater than the nonmonetary. This method of comparison, while it is the only one possible, does not allow the proper weight to the monetary demand, for that does not find full expression in the statistics of coinage. In 1921, for instance, the world's coinage of gold amounted to about $43,000,000, or over 2,000,000 ounces.[1] These figures by no means measure the money demand for gold born of the prerogative of free coinage. The large use of gold bullion

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[1] See *Report of Director of the Mint for 1922*, p. 232.

as money must also be taken into account. In all civilized countries, on account of the right of free coinage, uncoined gold is specially prized as being equivalent to money itself, and by banks is preferred to coin in the settlement of international obligations. From the mere statistics of coinage, therefore, we get no idea of the effect which the money demand has upon the value of gold. When a metal is coined into credit money, as is silver in the United States, the case is entirely different, for then the metal itself acquires no utility as money, and the effect upon the value of the metal is proportionate to the quantity coined.

There is still another reason why we cannot safely assume to measure the money demand for gold by the quantity of it that is coined. Even though only coined gold were used as money, yet the intensity of the demand for money would not be revealed by coinage statistics. The quantity of gold needed as money declines in proportion as its value rises. If the value of gold rises 100 per cent, only half as much gold is needed to consummate a given volume of exchanges.[1] It is evidently absurd, therefore, to hold, as do some writers, that the money demand for gold was not increasing after 1873 merely because the world's coinage at that time was declining. In 1873 the mints of the world, it is estimated, coined 12,000,000 ounces of gold, whereas in 1883 they coined only 5,000,000 ounces, and in 1891 only 5,700,000 ounces. We cannot conclude from these figures that the money demand for gold declined after 1873, for after that year the value of gold increased, so that an ounce of it in 1883 and 1891 satisfied a larger demand for money than in 1873.

It should be noted that the quantity of gold consumed in the arts does not decline in proportion as the value of gold rises. A rise in the value of gold is never accompanied by a corresponding decline in the demand for gold bijoutry, nor is a fall in its value attended by any notable increase in that demand. Indeed, the attention of people is not generally drawn to the fact that gold has changed in value, for there is little change in the prices of articles made of gold. As gold rises in value, therefore, since a given quantity satisfies a larger monetary demand, the arts or industrial demand tends to absorb an increasing proportion of the new supplies.

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[1] In the language of the economists, the "demand curve" for gold to serve as money varies with absolute uniformity as its value varies. That can be said of no commodity except when it is freely coined into money. If the value of salt, for instance, were doubled, there would be no reason to expect that the consumption of salt would be reduced one half. The "demand curves" of most commodities are irregular in their variations, but that of money is uniform.

### Effects of Seigniorage

125. A seigniorage charge, under a system of free coinage, raises the value of the coin above that of the same weight of uncoined bullion by an amount equal to the seigniorage percentage. There are two ways in which a government may exact its seigniorage. It may coin only part of the gold, retaining a certain proportion as seigniorage and not coining it, or it may coin all the gold and retain part of the coins. In either case, unless people disapprove of the seigniorage, the value of the coins will be above that of the uncoined bullion by the amount of seigniorage. The proviso, "unless people disapprove," is necessary, for if the coins so issued are not generally acceptable as money, the demand for money, and hence its value, will be affected. The supply of money will be no greater, whether the seigniorage is coined or uncoined, than it would be if no seigniorage were taken, so that the value of money, the demand for it not having been affected, will be unchanged.

The truth of these propositions may be made clear by illustration. Let us suppose that Congress provides for a seigniorage of 10 per cent on gold coins. This could be done in four ways: (1) the government could mint coins of the present weight, but coin only 90 per cent of the bullion offered, retaining its 10 per cent seigniorage in bullion; (2) it might mint into coins of the present weight all the bullion offered and keep 10 per cent of the coins, treating them like other money in its possession; (3) it might debase the coins 10 per cent (i.e. make them contain 10 per cent less gold) and coin only 90 per cent of the bullion offered, retaining the rest as seigniorage; (4) it might debase the coins 10 per cent, coin all the bullion offered, and retain 10 per cent of the coins. Let us see what effect each of these methods would tend to have on prices and upon the value-relation between gold bullion and gold coins.

The first plan would cause no change in the supply of money and so would have no immediate effect upon prices, but men would cease for a time to take gold to the mint, for in exchange for an ounce of pure gold they would receive only $18.60 instead of $20.67, the amount now given. The supply of money not increasing, its value would gradually rise as the demand for money increased with the growth of the country. Sooner or later gold coins would be worth 10 per cent more than the same amount of uncoined bullion, and then men would be under the same inducement as now to have their bullion converted into coin.

Results under the second plan would be almost the same as under the first. As the government, however, would coin all bullion presented, a given amount of bullion taken to the mint would have a greater effect upon the value of money than under the first method. Less bullion, therefore, would be delivered to the mint, and no bullion at all would be taken there until gold coined was worth 10 per cent more than gold uncoined. The permanent price level under this and the first plan would be some 10 per cent lower than it would have been had no seigniorage been exacted; for prices, instead of reflecting the value of gold, would reflect the value of coins worth 10 per cent more than the gold they contained. The so-called "mint price" of gold under the first and second methods would be $18.60 per ounce fine.

The third method involves a debasement of the coinage and it would seem that the value of money should fall as a result, but this would not happen so long as people were willing to use the light-weight coins as money. Under this plan a man taking 100 ounces of gold to the mint would receive $2067, the same amount now given, but the coins would be 10 per cent lighter than those now in use; a gold eagle, now containing 258 grains standard gold, would then contain only 232.2 grains. Men would surely not be more eager to get these light-weight coins in exchange for their gold than they are to get coins of the present weight; prices, therefore, could not rise on account of an increasing supply of money. Nor would prices fall on account of a diminution of the money supply. A fall of prices would seem paradoxical, for it would mean that the light-weight coins had greater purchasing power than full-weight coins. Since these new coins would be worth as much as the coins now in use (for we have seen that prices could not rise), the owners of bullion would be under the same inducement as now to have it coined. If they hesitated for any length of time about exchanging their bullion for light-weight coins, the increasing demand for money would lift the value of these coins above their present level and prices would fall. It would not take bullion dealers long to discover that the United States Mint was their best market place. Thus a seigniorage under the third method, if the new money were acceptable to the people, would have no effect whatever upon the prices of goods or upon the value of gold.

The fourth plan involves a like debasement of the coinage, with the difference that all the bullion presented to the mint is coined into money. Would not this cause a 10 per cent increase of the supply and hence a rise of prices? It would not. The mint price of gold would be the same as now, namely $20.67, and men would get the same profit from having gold coined that they get now. A given amount of bullion would be coined into more money than at present, but no increase in the money supply would result, for any tendency on the part of money to fall in value would be instantly checked by the cessation of coinage, since men would not take bullion to the mint unless it were worth 10 per cent more when coined than when uncoined.

These conclusions with regard to the effects of seigniorage, especially when a debasement of the coinage is involved, may seem to run counter to the generally accepted statement that a seigniorage, if it is coined, will cause prices to rise.[1] That statement is true only when the coinage is restricted, being under

[1] See Walker's *Political Economy* (advanced course), p. 147.

control of the government. If, for example, the free coinage of gold in this country were stopped and the government should recoin all our gold money, making the coins 10 per cent lighter than the present, the money supply would be increased 10 per cent and the value of money would correspondingly fall. If, however, the government recoined only 90 per cent of the existing stock of gold money, holding the rest in the Treasury, the money supply would not be increased and prices would not be affected. Under a system of restricted coinage, therefore, it is perfectly true to say that the coinage of a seigniorage tends to raise prices ; but under a system of free coinage it can have such effect only in so far as it lessens the demand for gold bullion and so lowers the value of gold.

### Seigniorage of 100 per cent

126. If the gold coins of the United States could lose 10 per cent of their gold without losing any of their value, why not 50 per cent, or even 100 per cent? Why should not the government keep all the gold and issue paper dollars in exchange for gold brought to the mint? Theoretically there is no reason why a seigniorage of 50 or 100 per cent should not be exacted. Ricardo stated the truth upon this subject as follows:

> The whole charge for paper money may be considered as seigniorage. Though it has no intrinsic value, yet, by limiting its quantity, its value in exchange is as great as an equal denomination of coin, or of bullion in that coin. On the same principle, too, namely by a limitation of its quantity, a debased coin would circulate at the value it should bear, if it were of the legal weight and fineness, and not at the value of the quantity of metal which it actually contained. — *Political Economy* (Bohn's edition), p. 341.

If the people of the United States had no desire to see or use any gold coins, and had implicit confidence in their government, legislative and executive, a law providing that men who take gold to the mint shall receive in new paper money $20.67 per fine ounce would have no effect upon the value of money or upon prices in this country. The new paper money need not even be a promise to pay gold; it might merely be inscribed "one dollar," "five dollars," etc., and yet the value of money would not be affected, for the amount of paper money issued would not exceed the amount of gold coins that would have been minted had the law not been changed. The country would be on the gold standard practically as it is now, the value of money corresponding with the value of gold bullion.[1]

The result would be the same even if the law provided that the government might sell or otherwise dispose of the gold bullion that it received; except that in this case, the government not keeping a hoard of gold and none being used by the people as money, a large quantity (about $2,785,000,000 in 1921) would be thrown upon the world's markets, its value would fall, and prices in all gold-standard countries, including the United States, would rise.[2]

127. In France we may see the effects of seigniorage in operation. According to the French law one kilogram of gold is coined into 3100 francs, of which the government retains seven as seigniorage. On account of this seigniorage charge the so-called "mint price" of gold in France is not 3100 francs per kilogram, but 3093 francs, for that sum of money is all that a man can get from the government for a kilogram of gold. Gold coins amounting to 3100 francs weigh only one kilogram, but no man would give them in exchange for their weight in gold. On account of this difference between the value of coined and uncoined gold, the gold coins of France are seldom melted down or exported. The Bank of France, when it has occasion to export gold, ships bars of bullion or the coins of some

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[1] Correspondence in value between the paper money and gold bullion would be lacking whenever the latter was rising in value more rapidly than money, for the supply of money could not then be reduced as now by the melting pot.

[2] Ricardo in his *Proposals for an Economical and Secure Currency* suggested a plan resembling that above outlined, but not so radical. He suggested that the Bank of England be permitted to issue its notes for uncoined bullion, showing that this plan would give England a paper currency regulated by the value of gold. See *Political Economy*, chap. xxvii. "Currency is in its most perfect state," said Ricardo, "when it consists wholly of paper money, but of paper money of an equal value with the gold which it professes to represent." — *Political Economy*, p. 339.

country, like the United States or England, in which gold is minted without seigniorage. If it should ship French coins abroad, it would send out something worth in France (but not in other countries) about one fifth of 1 per cent more than the same amount of gold uncoined.

The French government coins all the metal which it receives, and all these coins finally get into circulation, for the government uses the seigniorage tax for the payment of expenses just as it does receipts from any other tax. Consequently a given amount of gold in France makes for the country one fifth of 1 per cent more money than it would make if no seigniorage were exacted. So if the United States government should levy a seigniorage of 10 per cent on gold coinage, the existing supply of money (and the present level of prices) would be maintained with 10 per cent less gold than is now necessary.

### ADVANTAGES OF SEIGNIORAGE

128. Difference of opinion exists as to the practical advantage of a seigniorage charge. Among English writers the weight of authority opposes any charge for coinage in excess of the actual expense, it being held that thus perfect interchangeability between coin and bullion is secured, so that the supply of money is automatically regulated. This argument is not valid, however, for a seigniorage tax, although it separates the values of coin and bullion, does not destroy their interchangeability; it merely changes the ratios of exchange.

Another objection to seigniorage is the profit it offers to counterfeiters, but this objection holds only against an excessive seigniorage, say 10 per cent or more. An illustration is furnished by the silver dollar. Although worth a dollar in gold, its constituent bullion in 1922 was worth less than eighty cents. The profit derived from making counterfeit silver dollars out of standard silver necessitates constant watchfulness on the part of the government.

The advantages of seigniorage are: (1) it is economical, for a given quantity of metal makes a larger amount of money;

(2) it prevents the exportation or melting of coins. International payments are made in bullion valued by its weight in accordance with its mint price in the country receiving it; if seigniorage has been exacted the coins of a country will remain at home, for a shipment of coins to a foreign country, where they would be valued by weight as if they were bullion, would involve a loss of value equal to the seigniorage. It may be objected that the free movement of coins into and out of a country is desirable, in order that a redundancy or scarcity of money may be automatically corrected; but this objection has little force, for shipments of bullion would serve the same purpose. The banks exporting bullion would be compelled either to replace it in their vaults or to contract their credit; and in either case the effect upon the price level would be the same as that produced by an exportation of gold coins from a country in which coinage is gratuitous.

The advantages of a seigniorage tax may be summed up in one word, — economy, — and it is doubtful if they are great enough ever to give the subject practical importance. Between 1792 and 1922 the United States mints coined gold pieces amounting to $3,438,000,000, and of this sum over $2,500,000,000 was coined after 1873; yet it is doubtful if over $1,000,000,000 in gold coin has remained in the country. Much has been melted for use in the arts, some has been lost, and many millions of American eagles and double eagles now lie in the vaults of European banks, where they figure as bullion. The expenses of coinage, however, are not large enough to make these facts a cause of much regret.[1]

129. In the foregoing discussion more has been said of gold than of silver. The reader must not imagine that the principles elucidated apply only in the case of gold. They are

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[1] In the *Report of the Director of the Mint for 1922* (p. 11) the earnings of the mints and the assay office for the fiscal year 1922 are given as $22,189,000, which includes $21,089,000 profits from seigniorage. The expenditures were given as $2,075,000. This leaves a net profit from mint service of $20,114,000. Seigniorage on silver dollars and minor coins is properly separated from regular operating income of the mints, inasmuch as these coins are credit money and are part of the government's debt.

equally applicable to silver or any other metal that is freely coined for use as money. In Mexico[1] prior to 1905 a book on money would doubtless have made larger use of silver than of gold in its illustrations, for in Mexico silver was money exactly as gold is money here, the monetary unit being 377.139 grains of pure silver. There was free coinage of silver and a seigniorage tax of 5 per cent was levied, the government coining the seigniorage. The people of Mexico thought of silver as their measure of value. To them silver was money, and it seemed to them far more stable than any other commodity. Prices in Mexico showed the value of silver, for through the free coinage of silver all changes in the value of silver bullion acted upon the supply of Mexican money. The 5 per cent seigniorage charge in Mexico made the value of coined silver 5 per cent greater than the same amount of silver uncoined. For export purposes, however, the two were identical in value, for the government levied a tax of 5 per cent on all silver bullion exported.

## Gresham's Law

130. Since the use of coins is certain to cause a loss of metal by abrasion, the laws of most nations fix limits of "tolerance," providing that a coin shall be legal tender even though slightly under full weight. Gold coins of the United States, for example, may lose one half of 1 per cent of their weight in twenty years from the date of coinage (or a ratable proportion in a shorter period) without losing their legal-tender quality; but if they lose more they cease to be money and are valued by weight as bullion.

When occasion arises for the export of gold, exporters are careful to pick full-weight coins, for these cost them no more than the worn coins in circulation, but are worth more abroad on account of the greater quantity of bullion they contain. The principle here involved is commonly referred to as Gresham's law, after Sir Thomas Gresham, an English merchant, banker, and statesman, who is credited with having impressed the truth of this principle upon Queen Elizabeth in 1560, when the currency of England was in a chaotic condition. The principle, however, had been recognized by writers upon money long before the sixteenth century, and, indeed, is not difficult of apprehension, being merely an application of the broader law that all commodities tend toward those markets where their values are highest.

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[1] Mexico suspended the free coinage of silver in 1905, adopting the so-called "gold-exchange standard," which is described in Chapter XII, Section 176.

The popular expression of the law, "bad or cheap money drives out good," is not strictly true. In every country light-weight and full-weight coins are constantly in concurrent circulation, both having exactly the same value as money, and no coins are exported from a country until the supply of both is excessive, in which case prices rise, gold becomes more valuable abroad than within the country, and increased imports create a balance of indebtedness requiring the export of gold. Then it is that the full-weight coins are culled from the circulation and exported; for these, although worth no more at home as money than the lighter coins, are worth more abroad as bullion. The essential principle of the law may be simply stated as follows: *Whenever a coin is worth more as bullion than as money, it will either be melted for use in the arts or be exported as bullion to a foreign country.*

In so far as the industrial demand for a metal is satisfied by the melting of coins, the heavy coins are selected for the purpose. In this country Gresham's law receives illustration whenever gold coins are exported to Europe, for exporters are careful to send only full-weight eagles and double eagles. The light coins in circulation do not expel all those of full weight simply because before the stock of heavy coins is exhausted the industrial and export demand for bullion is satisfied, and thereafter the full-weight coins possess no greater value as bullion than as money.

Gresham's law is commonly given the widest possible application. It is used to explain not only the expulsion of heavy by light coins, but also the expulsion of the underestimated metal in a bimetallic system and the disappearance of the standard metal when paper credit money is allowed to depreciate. These latter cases are not exactly parallel or analogous with the first, and cannot be adequately explained by reference to a single principle or law. The operation of bimetallism and of depreciated credit money involves other principles quite as important as Gresham's law. Discussion of the law as applied to bimetallism and credit money is deferred, therefore, until these subjects are treated in detail.

History affords numerous illustrations of Gresham's law. The phenomenon which it explains was familiar to the Greeks, as is evidenced by the jeer of Aristophanes because their "old and standard" coins,

> Recognized in every realm for trusty stamp and pure assay,
> Are rejected and abandoned for the trash of yesterday.

A striking illustration of the law is given by Macaulay in his *History of England* (chap. xxi). William III found England full of clipped and sweated coins. A recoinage was ordered, but the handsome new money vanished. "Great masses were melted down; great masses exported; great masses hoarded; but scarcely one new piece was to be found in the till of a shop, or in the leathern bag which the farmer carried home after the cattle fair." The country was abundantly supplied with money in the shape of light and mutilated coins, which were accepted at their nominal value by the government. As a result the new coins were not needed as money and were worth more as bullion. The light coins continued to monopolize the circulation until the government, by declaring them no longer legal tender, stripped them of the money utility or function.

## Regulation of Supply

131. The supply of metal money is regulated automatically through the medium of price and the rate of interest. Gold, like any other commodity, always tends toward those markets where its value is greatest. In the case of commodities in general their obedience to this law is generally understood, for it

means merely that they move to the markets where the highest prices are offered for them. No man ever goes to the trouble of exporting wheat from Chicago to Liverpool merely from a desire to feed the people of England, or because he wishes to reduce our national surplus. All shipments are made because owners can get higher prices in Liverpool than in Chicago or New York. Just as wheat, cotton, and other commodities go to the markets where their values are highest, so does gold; but in its case value does not find expression in price. In the United States and in Europe generally, low prices mean that the value of gold is high, and high prices that the value of gold is low. In no other way is the value of gold indicated, for it has no price in these countries. In China silver is the standard of prices and the value of silver is indicated by the prices of commodities in general, high prices meaning a low value of silver, and low prices a high value of silver. Just as in the United States and European countries gold, in seeking those places where its value is highest, must move toward the places where prices are lowest, so silver, in China and other countries upon a silver basis, tends to go away from high prices and toward low prices.

The relation of the rate of interest to the international movement of the precious metals is obvious even to men who have given little thought to the subject. Ordinarily it is said that a high rate of interest attracts capital, and that a low rate repels it. This form of statement, generally speaking, is true enough, but without analysis it is liable to create the impression that capital always comes to a country in the form of gold (or silver, if silver is the money of the country). What happens is this: If the supply of money in a country is temporarily inadequate to maintain existing prices, bankers find their reserves declining and raise their rate of discount. The higher rate of interest has a double effect, — (1) it weakens the prices of stocks and speculative commodities, and (2) it increases the earnings of money as a basis of credit, that is, as a banking reserve. The first effect naturally leads to increased exports and diminished imports of goods and securities; the second causes bankers to seek to convert their foreign balances or credits into money, while foreign bankers are at the same time prompted to increase their balances in the country where the rate of interest is high. The combined result is a flow of gold toward the country of relatively low prices and high discount rate, and the movement continues until the country's need for money is satisfied; in other words, until its price level and its rate of interest (differences due to distance, amount of risk, etc., being left out of account) are the same as those of other countries having the same standard.

The price level in all countries using the same metal tends to be uniform. It is impossible for prices in England long to maintain a level at which an ounce of gold can buy less in England than in France and Germany or in the United States. A country in which the price level is above that of other gold-standard countries will sell less to foreigners than usually and will buy more until it is obliged to export some of its gold in payment of the balance. This exportation of gold, reducing its own money supply and increasing that in other countries, will go on until an equilibrium is established and the price level in all is uniform. Thus, through this automatic movement of gold resulting from the fact that people like to buy goods where prices are low and sell where prices are high, and to lend their money at the highest rate of interest, the world's stock of gold is evenly distributed among the countries using it as money, each country getting its share without any conscious effort on the part of its government or business interests.

Here we have one of the advantages of metal money. There need be no concern about the supply; that is self-regulated and needs no attention from any authority. Indeed, any attempt to regulate it is likely to work more harm than good.

132. A silver price level is unrelated to a gold price level. A fall of prices in China indicates a rise in the value of silver, but has no significance with regard to the value of gold. It may lead to an exportation of silver from the United States to China, but can have no more effect upon the flow of gold from this country than a rise in the Liverpool price of wheat can

have on our exports of cotton. Changes of prices in China record changes in the value of silver and have no relation to the value of gold. When prices in China decline silver is growing more valuable in China, and importations of silver will follow unless at the same time that metal has been rising in value in other countries.

133. Credit money is often coined from metal, and the reader should be careful not to confound it with metal or commodity money. Credit money is a promise to pay money which is universally acceptable as a medium of exchange, and the promise may be impressed upon a coin or upon a piece of paper. Paper credit money is the more economical, but in certain denominations coins are preferred. Thus in the United States the silver dollar is a piece of credit money. The promise is not stamped upon the coin itself, but is written in the law which provides for its issue. The silver half dollars, quarters, and dimes are also credit money; so are the "nickels" and bronze one-cent pieces. The fact that we use silver, nickel, and bronze as material for credit money does not make those metals money at all. The free coinage of gold gives it a new utility, that of exchangeability, and makes the metal itself practically money; but the use of silver, nickel, and bronze as the material out of which credit money is made gives these metals no new utility and does not bring to bear upon them any part of the demand for money.

134. Gold and silver were first made money by custom, but the law now forces their use by making them legal tender for the payment of debt. As business operations became more involved and important it was found convenient for both debtor and creditor to have the law define exactly what was money; at the present time such a law is found on the statute books of every civilized people. In the United States the law defines the dollar for the same reason that it defines the yard and the bushel, — in order that when these terms are used in contracts there can be no doubt as to what they mean. The dictionary is not the book in which to look for an authoritative definition of the word "dollar"; it is to be found only in the Acts of

Congress.[1] The definition of the pound sterling or of the shilling is found in the Acts of Parliament. Custom and the common law made gold legal tender in England even before an act of Parliament so declared it, but English statesmen found it expedient to give the words "pound," "shilling," and "pence" definite meanings; so the law makes them signify certain quantities of gold in order that there may be no dispute between debtor and creditor.

Some writers have criticised the modern practice of naming any definite thing as legal tender, or of making anything money by law. They have urged that money, like language, should be left entirely to the people; that business men, if left unhampered by law or legal-tender acts, would adopt the money best suited to their needs. This objection to legal-tender legislation does not seem to be well founded. The word "dollar," like "bushel," or "acre," or "yard," ought to have a definite signification, and it is difficult to see any good reason why Congress should not be allowed to define it. The opposition to legal-tender acts in this country springs largely from the unwise use which Congress made of its privilege during the Civil War, when it enacted that United States notes (greenbacks) should be "lawful money and a legal tender in the payment of all debts, public and private."[2] Since the greenbacks were not worth their face in coin, injustice was done by this act in all cases of debt incurred prior to its passage, when gold and silver alone were lawful money. However, a legislative body should not be stripped of its power to make laws merely because it may exercise that power unwisely. The Congress of the United States can usually be relied upon to reject any measure that is condemned by the sober judgment of the people; its mistakes in monetary legislation have almost always had their origin in ignorance. What is needed is not a curtailment of its power but a better understanding of the nature of money among bankers and business men.

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[1] In the Act of March 14, 1900, the meaning of "dollar" is fixed as follows: "That the dollar consisting of twenty-five and eight tenths grains of standard gold, nine tenths fine, as established by section 3511 of the Revised Statutes of the United States (Act of February 12, 1873), shall be the standard unit of value." Compare this with the vague definition in a standard dictionary: "A silver coin of the United States, of the value of 100 cents, or rather above 4s. sterling. . . . The value of a dollar, the unit employed in reckoning money in the United States."

[2] Act of February 25, 1862.

## LITERATURE

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The annual reports of the United States Director of the Mint contain much information concerning the monetary systems of foreign countries.

# CHAPTER X

## PRODUCTION AND VALUE OF THE PRECIOUS METALS

135. Metal money lacks stability of value. 136. Importance of the conditions governing the supplies of the precious metals. 137. The values of the precious metals, like the values of other commodities, conform in the long run to the cost of production. 138. The production of gold will tend to increase when its value is rising and to decrease when its value is falling. 139. The gold miner is more interested in prices, though not consciously, than any other producer. 140. The use of metal money results in cycles of rising and falling prices. 141. The value of gold is not subject to sudden variations. 142. The present outlook for the production of gold. 143. Statistics of the production of gold and silver since 1492. 144. Changes in production have been accompanied by corresponding changes in the price level.

135. Since the value of metal money must fluctuate with the value of the metal, metal money cannot be ideal or perfect. In a country which uses gold as money, its free coinage being permitted, the price of any good will tend to change whenever its own value, or whenever the value of gold, changes. In such a country prices are subject to variations from three different causes: (1) because the value of a good changes on account of changes in the demand for or supply of it; (2) because of a change in the relation between the demand for and supply of money; (3) because of a change in the relation between the demand for and supply of gold bullion the world over, for a change in the value of gold bullion immediately affects the supply of money.

Metal money, therefore, must always lack stability of value, and this lack is its only important defect. Any great increase in the output of the world's mines causes a fall in the value of the metal and a rise in the prices of goods; on the other hand, when the output is small the metal becomes more valuable and the prices of goods fall.

Throughout the centuries during which gold and silver have been used as money, prices have never been free from the powerful influence exerted by changes in the available supply of the precious metals. During the Middle Ages the mining of gold and silver, an arduous and dangerous work which the Romans had imposed upon slaves, practically ceased, and the stock of the precious metals available for monetary use suffered positive diminution. In addition to the losses from abrasion and hoarding, much was absorbed by the church for decorative purposes. The value of gold and silver rose and prices fell, until in the tenth century pennies were prized almost as dollars are now.

136. Since the values of the metals which the civilized world is using as money depend very much upon the supply of the metals themselves, the conditions governing changes in their supply are of the utmost importance. Gold is now the money of Europe and the United States, of Japan, of Peru, of Mexico, and of most of the European colonies. If the value of gold should decline 50 per cent, prices in all these countries would be doubled. Have we any assurance that something of the sort will not happen? Do changes in the value of gold follow any law, so that we may look into the future without fear that our wealth in bonds and mortgages will dwindle and melt away because of rising prices? Or are changes in the value of gold independent of law and so capricious and arbitrary that we can have no definite knowledge with regard to the future purchasing power of our dollar? The world's supply of gold is increasing at an unprecedented rate, yet the mines of British Columbia, Alaska, and South Africa seem only just touched. Is the output of these mines to increase year after year until gold becomes as plentiful as silver? If so, then prices in gold-using countries are destined to rise many hundredfold, and an era of the wildest speculation and panic awaits us.

## Cost of Production

137. The values of the precious metals, like the values of other commodities, conform in the long run to the cost of production. This law of value may strike the reader as in conflict with the law of demand and supply, but if he will consider how

cost of production regulates the value of a commodity, he will see that the two laws are in perfect harmony. If the value of an article is such that its price is 60 cents, its supply will depend upon the cost of producing it. If the cost is such that only a fair profit can be made when it is sold at 60 cents, producers will take care not to produce more than can be sold at that price; but if some improvement lowers the cost of production and so increases the profit, the extraordinary profit will draw capital from other fields of production, the supply of the article will be increased, and its value and price will fall until only an ordinary rate of profit can be secured from its production. On the other hand, if the price of an article is depressed through an accidental increase of the supply, or because of a falling off in the demand, so that it sells for less than its cost of production, certain producers will diminish their output and thus reduce the supply until the price is restored to a figure which represents the cost. It is in this simple way, through changes in the supply of goods automatically effected by competition among producers, that the values of most goods are made to conform to their costs of production. Men are constantly seeking to employ their capital and labor in those fields where profits are greatest, — namely, where values are furthest above costs. Hence the values of all goods, so far as they are freely produced by men, tend to an equilibrium; that is to say, the exchange ratios of goods tend to represent the amount of capital and labor which has gone into their production.

Gold and silver are no exception to this rule, but the fact that they are used as money makes the application of the law in their case less simple and evident. When the value of gold or of silver is much above the cost of production, the same thing happens that happens when the value of any other commodity rises above the cost; when the profits of gold mining are high, capital and labor are attracted to it from all quarters of the globe. If the price of iron rises, the mining and smelting of iron increase. A high price of wheat increases the acreage of the next season; a low price reduces it. It is only when the law is applied to the precious metals that any one is puzzled.

138. The production of gold will tend to increase when its value is rising, and tend to decrease when its value is falling. This truth, so easily understood when applied to ordinary commodities, is obscured in the case of gold by the fact that gold in this country and in Europe has no price. It is itself the maker of prices and seems independent of the ordinary laws governing price. As we have seen, its price seems fixed and its value stable, so that it does not occur to the average man that the profits of gold mining are affected in any way by changes in the value of gold. He sees clearly enough that the profits of iron mining depend upon the price of iron, or of copper mining upon the price of copper ; but the profits of gold mining seem to him to depend upon the quantity of gold mined and to vary as that quantity varies. The owner of a copper mine has his eye upon the price of copper ; the farmers of Minnesota are interested in the price of wheat : it is upon these prices that their profits depend. But the gold miner studies no market report. He will find the price of gold published in no paper. Is he not, therefore, in a different position? Is he not engaged in a unique industry, in one the profits of which are independent of market fluctuations ?

## Gold Miners' Interest in Prices

139. Curiously enough, the gold miner is more interested in prices, though not consciously, than any other producer. He is interested in all prices, for the value of his product varies with every change in the prices of goods in general.

The relation of the gold miner's income to general prices can be made clear by illustration. Let us suppose that a man owns a mine in Colorado from which he is getting an ounce of pure gold a day. This gold, if we make a slight deduction for the expenses of shipment, purification, etc., may be supposed to yield him $20. How is he concerned about prices ? Let us suppose that when he opened his mine the prices of food, powder, tools, etc., were such that his expenses were $10 a day. His daily profit, therefore, was $10. Suppose that during the course of three years prices rise 50 per cent. His daily expenses are now $15 and his net income has been reduced one half. If prices go on rising, his profits will go on decreasing, until a time will come when he will abandon the gold mine as no longer profitable, even though in any one day he is able to get as much gold from it as before. A fall of general prices would have produced the opposite effect upon the miner's profits; he would find his expenses steadily growing less and, therefore, his profit increasing. A rise of prices would lessen the amount of gold which he could lay by, and also lessen its value to him, for its purchasing power would be reduced.

A fall of prices would give him double satisfaction; it would enable him to increase the daily addition to his store of gold, and would also add to its purchasing power.

140. Falling prices lead to an increase in the production of gold; rising prices lead to a decrease in the output. Since all gold miners must be affected the same way as our single miner by changes in the level of prices, it is clear that a rise of prices must lessen the profits of gold mining, and that a fall of prices must increase this profit. The industry of gold mining, like all industries, is carried on under diverse conditions; some mines are very profitable, while others barely pay the cost of operation. At all times mines are being worked which yield only the ordinary rate of profit, and these are the ones first to be abandoned when prices rise. These may be called the "marginal" mines, and the cost of extracting gold from them is the cost with which the value of gold tends to conform. As the value of gold falls, that is, as prices rise, the expenses of gold mining increase and certain marginal mines are abandoned. The world's output of gold being thus diminished, the rate of increase in the world's stock of gold receives a check, and the downward tendency of its value is checked. On the other hand, when prices are falling because the demand for gold is outrunning the supply, poorer mines are brought within the field of profitable operation and a gradual but steady increase of the annual output sets in. Furthermore, since falling prices are often accompanied by depression in many industries, the attention of men is more than

ordinarily directed to the profits of gold mining, and prospectors go out in unusual numbers in search of new mines. As a result, a fall of prices is usually followed not only by an increased output from old mines but also by the discovery of new fields of gold, the yield from which finally so augments the supply that the value of gold begins to fall and the prices of goods to rise.

Metal money, therefore, naturally results in cycles of rising and falling prices. We have found that the value of gold obeys a law common to all commodities. There need be but little fear that changes in the prices of goods in the future are to be violent or arbitrary on account of changes in the value of gold. Unless men find some new way of getting gold from the earth, or discover mines where gold may be dug like iron or coal, the course of prices in the future is destined to be like that in the past, now falling for twenty or more years, and now rising.

141. Although the value of gold is fixed by the same law that fixes the values of other commodities, its value nevertheless is not so subject to sudden changes, for the stock of gold in the world is so large that the annual additions bear a small proportion to the whole. It was estimated by the United States Director of the Mint in 1919 that the world possessed in a form available for monetary uses enough gold to coin $7,600,000,000. How much gold exists in other forms it is impossible to conjecture, but it does not concern the student of money, for, economically speaking, it has been consumed; that is to say, an industrial use has been made of it, whereby it has acquired a value that will prevent it from being melted and used as money. In the same way, if we were to estimate the amount of iron in the country available for manufacture into steel rails, we should leave out of account all iron which has been converted into agricultural implements, hardware, and beams for bridges and buildings.

The world's output of gold in 1921 was sufficient to coin about $330,000,000, but of this at least 20 per cent was absorbed by the arts, so that about $285,000,000 was added to the world's monetary stock. This increase is equal to hardly 4 per cent of the total stock and can produce no great or sudden change in the value of an ounce of gold. So long as the world uses gold as money no sudden change in the price level need be feared, but we must expect from generation to generation cycles of rising and falling prices.

## METHODS OF MINING GOLD

142. Since most of the civilized nations of the earth are now using gold as money, the outlook for its production in the future is a matter of extraordinary interest. When gold is found mixed with earthy matter, as in the beds of rivers or the sands of Cape Nome, Alaska, it is called "placer" gold. Miners partly detach the gold from the dirt by "panning" it, or by "sluicing" it with running water, and then by adding quicksilver obtain an amalgam from which the pure gold is easily separated. Most of the gold now in use has been obtained in this manner. The metal is also found embedded in rock, sometimes in a pure state, sometimes in chemical combination, and in this form is known as quartz gold. The quartz is crushed and the pure gold extracted with quicksilver. When gold is found, as it often is, in chemical combination with sulphur, it is extracted by the use of either chlorine or cyanide of potassium, for both of which the metal has great affinity. The cyanide process has been employed since about 1890, and has been partly responsible for the recent great increase in the earth's output of gold, for the waste under this process is much less than under any other. Gold is sometimes found in such close association with other metals that it can be extracted only by smelting. Electricity has of late been found most serviceable both in mining the ore and in extracting the metal from the crushed quartz.

In the past the business of gold mining was more a lottery than an industry; the owner of a mine never knew when his "pay dirt" would be exhausted; and it was impossible to foretell the production. But the improved processes invented during the last quarter of the nineteenth century are believed by experts and special investigators to have converted gold mining into a stable industry, the sources of supply and costs of operation being well known. If this is the case, the world need not fear any great scarcity of gold in the future, or any long period of falling prices and industrial depression, for any increase in the value of gold should promptly lead to an increase of the supply. However, prophecy as to the production of the precious metals has so often in the past been confounded by events that we need not take our modern scientific prophets too seriously.

The greatest gold-producing countries in the world to-day are the United States, Australia, and the Transvaal in South Africa. In the year 1921 the Transvaal produced $168,000,000, the United States $50,000,000, and Australia $21,000,000, — these three countries producing 70 per cent of the world's total output of $330,000,000. In the United States, California was the largest producer, its output being $15,000,000; Colorado mined $7,350,000, Nevada $3,200,000, Alaska $7,999,000, and South Dakota $6,500,000. The output of the Klondike region in Canada was $19,108,000. Mexico produced $14,000,000, thus ranking fifth in order of productivity. The sixth in order was Rhodesia, with a production of $12,000,000. The production of practically all gold-producing countries fell off materially in 1920 and 1921.

## Statistics of Production

143. The thirst for gold and silver, quite as much as the desire to find a new route to the East Indies, was one of the compelling motives that led to the discovery and exploration of the American continent. It is estimated that at the end of the fifteenth century the world's monetary stock of precious metals had dwindled to $175,000,000. The value of both gold and silver was high, and the prices of commodities correspondingly low. William Jacob, an Englishman who made about 1830 a careful study of the meager data available, estimated that during the twenty-five years following 1492 the annual production from America (mainly gold) averaged $250,000. The output of Old-World mines at this time he puts at about $500,000 a year. The accidental discovery of the Potosi silver mines in 1546,

which was almost coincident with the invention of a process for extracting silver from ores by the use of quicksilver, was followed by what seemed a fabulous production, the annual average production of silver from 1546 to 1600 being estimated at over $10,000,000.

Throughout the seventeenth century the supply of silver increased more rapidly than that of gold, but in the eighteenth century, after the discovery of gold in Brazil, the production of that metal increased at the greater pace. Jacob estimated that in 1492 the Old-World production was at the ratio of eighty-nine ounces of silver to eleven of gold. For the sixteenth century the production ratio was 3.1 gold to 96.9 silver; for the seventeenth century, 2.3 to 97.7; and for the eighteenth, 3.2 to 96.8. The coinage value of the gold mined during those three centuries was about $2,371,000,000, and of the silver about twice that sum, namely, $4,863,000,000.[1]

During the first half of the nineteenth century there was a marked decline in the output of gold and silver. Between 1760 and 1810 the annual production of both metals had amounted to some $45,000,000, whereas during the twenty years after 1810 it amounted to only $28,000,000. Gold discoveries in California in 1848 and in Australia in 1851 were followed by a sudden and great increase in the output of gold during the next twenty years, the production averaging $133,000,000 a year between 1850 and 1860, and $125,000,000 between 1860 and 1870. The production of gold thereafter declined a little until 1889, averaging during the eighteen years following 1870 only about $109,000,000 a year.

During the great outpour of gold between 1850 and 1870 the production of silver made little gain; for the decade following 1850 it averaged only $37,000,000 per annum. But after 1870, while the production of gold was slightly declining, that of silver increased, the annual output for the period 1871–1880 being $92,000,000, and during the next decade $129,000,000.

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[1] These figures are Soetbeer's estimates. See Preston's *Precious Metals of the United States*, 1894, p. 113.

The next great cycle of gold production began in 1889, when large supplies first came from the Transvaal in South Africa. Soon afterward Alaska and the Klondike began to surrender their treasures, and the mines of California and Colorado and Australia became more productive. In 1896 the production of gold had reached $202,000,000; in 1899, $306,000,000; and in 1904, $358,000,000. War checked production in the Transvaal in 1898 and 1899, but the South African mines are now in operation again, and an increasing production is predicted. During this period (1889–1904) the production of silver has made little advance, the annual average being $212,000,000 (coinage value).

The following table sums up the figures since 1492.

| | Gold | | Silver | |
|---|---|---|---|---|
| | Total | Annual Average | Total | Annual Average |
| 1500–1800 | $2,371,000,000 | $7,900,000 | $4,863,000,000 | $16,210,000 |
| 1801–1850 | 798,000,000 | 15,960,000 | 1,359,000,000 | 27,180,000 |
| 1851–1870 | 2,596,000,000 | 129,800,000 | 879,000,000 | 43,900,000 |
| 1871–1890 | 2,211,000,000 | 110,500,000 | 2,218,000,000 | 110,900,000 |
| 1891–1900 | 2,101,000,000 | 210,100,000 | 2,089,000,000 | 208,900,000 |
| 1901–1905 | 1,613,099,000 | 322,620,000 | 1,086,030,900 | 217,206,200 |
| 1906–1910 | 2,167,265,000 | 433,453,000 | 1,275,150,900 | 255,030,180 |
| 1911–1915 | 2,295,860,000 | 459,172,000 | 1,293,318,000 | 258,664,000 |
| 1916–1920 | 1,960,013,000 | 392,003,000 | 1,169,935,000 | 233,987,000 |
| 1921 | 329,915,000 | —— | 226,609,000 | —— |

The statistics of production are presented in the table on page 213, in the first four columns of which the figures represent millions. That table gives the production both in fine ounces and in coinage value, an ounce of gold being valued at $20.67 and an ounce of silver at $1.2929. This method of calculating the coinage value is inaccurate, for it implies that the value ratio of the two metals was 16 to 1, whereas that ratio, as shown in the table, varied from 10½ to 1 in the year 1500 to 40 to 1 in 1900. The reader must bear in mind that the figures for the sixteenth, seventeenth, and eighteenth centuries are mere estimates, no reliable data of production having been preserved; and also that during the nineteenth century and at the present time, from 5 to 10 per cent of the gold and silver mined escapes the eye of the statistician. The value ratio between gold and silver, given in the last column, is that which prevailed at the beginning of the respective periods.

### Prices vary with Output

144. Let us briefly examine the effects of increasing and decreasing production upon the values of the two metals. During the next three centuries after the discovery of America both metals were in common use as money, silver probably having the preference. During the nineteenth century down to 1870, although England adopted the gold standard in 1816, the monetary demand was applied about equally to both metals. Prices, therefore, from 1492 to 1870 reflected the values of both gold and silver.

The new supplies of the precious metals from America first caused a rise of prices in Spain, the country into which the greater portion was first taken. The exportation of the precious metals from Spain was made a capital offense, yet gradually they were distributed over Europe. General prices in Europe, however, were not affected until 1570. Adam Smith, indeed, estimated that prior to that date the value of silver, the leading monetary metal or standard of the sixteenth century, rose a little; but thereafter its value declined steadily and rapidly until the end of the seventeenth century, when general prices appear to have been between 200 and 300 per cent higher than in 1492.[1]

During the eighteenth century there was no great change in the price level, but in the first half of the nineteenth century

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[1] Thorold Rogers, in his *Six Centuries of Work and Wages*, maintains that general prices were not affected until the end of the sixteenth century.

## PRODUCTION OF GOLD AND SILVER (1492–1911)

(Six ciphers omitted)

| | Gold | | Silver | | Percentage of Production | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Fine Ounces | Coinage Value (Dollars) | Fine Ounces | Coinage Value (Dollars) | By Weight | | By Coinage Value | | Commercial Value Ratio |
| | | | | | Gold | Silver | Gold | Silver | |
| 16th cent. | 24 | 502 | 734 | 949 | 3.1 | 96.9 | 34 | 66 | 10.5 to 1 |
| 17th cent. | 29 | 606 | 1197 | 1548 | 2.3 | 97.7 | 28 | 72 | 11.8 " 1 |
| 18th cent. | 61 | 1263 | 1834 | 2371 | 3.2 | 96.8 | 34 | 66 | 15 " 1 |
| Total 1500–1800 | 114 | 2371 | 3765 | 4863 | 2.9 | 97.1 | 33 | 67 | |
| 1801–1840 | 21 | 434 | 801 | 1035 | 2.5 | 97.5 | 29 | 71 | 15.3 to 1 |
| 1841–1850 | 18 | 364 | 251 | 324 | 6.6 | 93.4 | 52.9 | 47.1 | 15.7 " 1 |
| 1851–1860 | 65 | 1333 | 288 | 372 | 18 | 82 | 78 | 22 | 15.5 " 1 |
| 1861–1870 | 61 | 1263 | 392 | 507 | 13.4 | 86.6 | 71 | 29 | 15.3 " 1 |
| 1871–1880 | 56 | 1151 | 710 | 919 | 7.3 | 92.7 | 55 | 45 | 15.6 " 1 |
| 1881–1885 | 24 | 496 | 460 | 595 | 5 | 95 | 45 | 55 | 18.2 " 1 |
| 1886–1890 | 27 | 564 | 544 | 704 | 4.7 | 95.3 | 44 | 56 | 20.7 " 1 |
| 1891–1895 | 39 | 814 | 788 | 1018 | 4.7 | 95.3 | 44 | 56 | 27 " 1 |
| 1896–1900 | 62 | 1286 | 828 | 1071 | 7 | 93 | 54.6 | 45.4 | 33.50 |
| Total 1801–1900 | 373 | 7706 | 5072 | 6547 | 7 | 93 | 54 | 46 | |
| 1901–1905 | 78 | 1613 | 840 | 1086 | 8.5 | 91.5 | 59.8 | 40.2 | 36.30 |
| 1906–1910 | 105 | 2167 | 986 | 1275 | 9.6 | 90.4 | 62.9 | 37.1 | 35.67 |
| 1911–1915 | 111 | 2296 | 1000 | 1293 | 9.9 | 90.1 | 63.9 | 36.1 | 36.67 |
| 1916–1920 | 95 | 1960 | 905 | 1170 | 9.5 | 90.5 | 62.6 | 37.4 | 22.58 |
| 1921 | 16 | 330 | 175 | 227 | 8.3 | 91.7 | 59.2 | 40.8 | 32.75 |
| Total 1901–1921 | 405 | 8366 | 3906 | 5051 | 9.4 | 90.6 | 62.3 | 37.7 | |
| 1492–1921 | 892 | 18,433 | 12,735 | 16,466 | 6.5 | 93.5 | 52.8 | 47.2 | |

the per capita production of the metals declined and their value rose, prices falling some 50 per cent between 1810 and 1850. The Australia and California discoveries led to a fall in the value of gold, prices rising some 30 per cent between 1850 and 1870. During the ten years following 1870, for reasons discussed in the next two chapters, silver as a standard of prices was discarded in favor of gold by the United States and the leading countries of Europe. Thus an additional monetary demand for gold was created at a time when its production was slightly decreasing; its value accordingly advanced and prices in all gold-standard countries tended downward until 1896, when the price level was some 50 per cent lower than in 1870, indicating that the purchasing power of an ounce of gold had doubled.

In 1896 prices, particularly in Europe, began to show the stimulating effect of the fresh gold from South Africa, and since that date the tendency has been upward. The *Economist* index number rose from 86 in 1897 to 101 in 1900, a rise of 17.4 per cent; during 1901 it declined to 89, but then moved up again, standing at 100 at the end of 1903 and at 97 at the end of 1904. The Sauerbeck number rose from 61 in 1896 to 75 in 1900, an increase of nearly 23 per cent; and the number prepared by the United States Department of Labor rose from 89.7 in 1897 to 110.5 in 1900, a rise of over 23 per cent. Dun's index number, which is weighted according to the relative importance of commodities as articles of consumption in the United States, shows the remarkable advance of 43 per cent in the seven years following 1897, the number rising from 72.455 in July, 1897, to 103.615 in March, 1904.

Thus we find that the movement of prices in the past, as theory would lead us to expect, has been in great cycles, — now a period of increasing production of gold and silver and rising prices, and then a period of falling prices consequent upon a diminished output of the precious metals. The nineteenth century furnished four such periods, — falling prices from 1810 to 1850 and from 1870 to 1896, and rising prices from 1850 to 1870 and from 1896 to 1900. That the present upward tendency of prices will be continued indefinitely cannot be expected; for the time must come, if prices continue their upward course, when gold mines now profitable will be abandoned and the yearly increment to the world's stock of gold will grow relatively less and less, until the value of the metal will increase and prices again tend downward. When that change will come we can only conjecture. If the opinions of mining experts are well founded, it would seem that the rise of prices in gold-standard countries is destined to continue during the first quarter of the twentieth century, for it is said that at the present level of prices a large part of the world's output of gold is mined at a cost of much less than $20 per ounce.[1]

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[1] Evidently if we only knew what profits were now being made in all the gold mines of the world, it would be an easy matter to discover the marginal mines and determine how the production of gold would be affected by any further uplift of the general price level. If we should discover that most of the gold now taken from the earth was got out at a cost of $10 an ounce, we should have reason to expect a continuation in the present large output, even though present prices nearly doubled. Unfortunately we have not the figures necessary for such an estimate.

The following is from a memorandum kindly furnished in July, 1905, by Hon. George E. Roberts, United States Director of the Mint.

> The most important gold field in the world is that of the Transvaal, South Africa, and for that the data as to product and working costs is quite complete. The total output for the calendar year 1904 was $78,130,728 produced by seventy-four companies operating in the Rand and outlying districts. Their working profits, exclusive of the 10 per cent tax on profits, are reported at $26.402.168. Of these companies only thirty-five paid dividends, which in all amounted to $19,114.784.70. The difference between working profits and dividends is the total of sums carried forward on various accounts, expenditures for enlarged operations, interest, taxes, etc. The dividend-paying companies produced 70 per cent of the total yield. The cost of production per ton of rock handled was practically the same as in 1898, but the profits per ton were reduced from $4.26 to $3.46, owing to a lower average grade of ore. As the companies have been hampered since the war by a lack of skilled labor, it is evident that working costs would have been reduced but for this fact, and better results may be looked for this year.
>
> Another field in which a large production is made by comparatively few companies, and for which statistics are available, is that of West Australia. Its output in 1904 was $40.997,002. Sixty-seven West Australian companies are listed in London, but I am not informed as to how many contributed to the yield. Only sixteen paid dividends, amounting to $5,007,046, equal to about 12½ per cent of the yield. The tendency of costs is still downward in this field.
>
> In the United States there are so many producers in scattered fields with varying conditions that it is difficult to obtain satisfactory figures. The Cripple Creek district is the most important one. Its total output has been estimated by the *Engineering and Mining Journal*

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and the Colorado Springs Mining Stock Association at $139,000,000 to January 1, 1905. These figures include the estimates of the State Bureau of Mines since 1897, when they became available. The *Mining Investor* of Colorado Springs gives the amount carried by publicly announced dividends of incorporated companies as approximately $35,000,000. It says that the profits of individual operators and leasers would raise this materially.

The information I have goes to show that while some factors in the cost of mining have felt the general influence of rising prices since 1898, improvements in machinery, in metallurgical processes, and in the organization of working forces have been going on, and up to date have fully overcome the advancing tendency. In all important fields I think the tendency on the whole, to this time, has been toward lower costs per ton of ore handled.

# CHAPTER XI

## MONOMETALLISM vs. BIMETALLISM

145. Shall one metal or two metals be freely coined? How can there be two standards of prices? 146. The transference of the money demand is the essential feature of bimetallism. 147. The money demand for the metal does affect its value. 148. Bimetallism dependent on the uncertain production ratios of the precious metals. 149. The argument that bimetallism will yield a more stable standard. 150. The advantage claimed for bimetallism because of a common par of exchange. 151. The argument for bimetallism based on the experience of France. 152. The monometallist's criticism of this argument. 153. Critics have failed to take into account the effect of the French seigniorage. 154. The experience of the United States with bimetallism does not prove that international bimetallism would be a failure. 155. Examination of fluctuations in the market ratio of gold and silver during the nineteenth century. 156. The facts indicate that the French monetary demand exerted a powerful influence upon the values of the two metals. 157. The fall of the gold price of silver after 1870 was due to the appreciation of gold. 158. The value of silver did not decline greatly until after 1890. 159. The unconscious bimetallism which prevailed before the nineteenth century. 160. Monometallism in England is the outcome of unscientific efforts to establish bimetallism.

145. Monometallism is a monetary system in which only one metal has the right of free coinage. Bimetallism signifies the free coinage of two metals at a fixed ratio, the coins of either being legal tender as the debtor may elect. Coins of other metals may also be struck, and may be legal tender, but these are credit money, not standard money. In a bimetallic system the monetary unit consists of a certain weight of one metal or a certain larger quantity of another metal. For example, the first definition of a dollar in the United States, as set forth in the law of 1792, described the dollar as being either 371.25 grains of pure silver or 24.75 grains of pure gold. The law, of course, provided for an admixture of alloy, but a dollar as then defined meant two separate and distinct things. Bimetallism, therefore, names two standards of value or price and is on that account sometimes called the joint or double standard.

But how can there be two standards of value or price? Would not bimetallism necessarily yield two sets of prices, one representing the value of one metal, the other that of the other metal? Is it not as absurd to say that a dollar may mean two things as it would be to say that a yard may mean 36 inches or 39 inches? How can a double monetary standard be more practicable than a double standard of length or of capacity? These questions will at once occur to the reader.

As various countries have already tried bimetallism, in our discussion of it we shall be able to supplement theory with the results of practical experience. Indeed, mankind has had more experience with the joint standard than with the single standard. Not until the nineteenth century did any nation definitely adopt the policy of monometallism. In 1816 the English Parliament defined the pound sterling as being 113 grains of pure gold, and that definition still holds. Prior to 1816 a pound sterling had signified either a certain amount of gold or a certain other amount of silver. The example of England was not followed by other nations in Europe, nor by the United States, until after 1870. Prior to this date, in most of the countries of the world, payments could be effected in either gold or silver. However, before we study the world's actual experience with bimetallism, let us consider the theoretical possibility and the laws which must govern the values of two metals when either may be used as money.

146. The theory of bimetallism rests upon the following hypothesis: When two metals are freely coined at a fixed ratio, the coins of either being legal tender, the demand for money will keep the values of the two metals at the mint ratio; for if one tends to fall under that ratio, the total money demand will be transferred to it, so that its value will rise while the value of the other metal will decline.

By the expression "mint ratio" is meant the ratio between the quantity of the two metals which constitutes respectively the monetary unit. Thus in 1792, as the reader can discover by dividing 371.25 by 24.75, a silver dollar was fifteen times heavier than a gold dollar. The statute assumed that one ounce of gold was worth as much as fifteen ounces of silver, and so made the mint ratio 15 to 1.

The theory of bimetallism declares that the money demand will be applied to that metal which happens to be overestimated in the ratio. For example, if in this country in 1792 fifteen ounces of silver had been worth less than one ounce of gold, men would naturally have sought to pay their debts by the use of silver. Silver would have been the cheaper money metal, the increased demand for it would have caused its value to rise; at the same time the falling off in the demand for gold, since it would not have been wanted for use as money, would have caused its value to decline.

According to the theory of bimetallism, the metals could never widely depart from the mint ratio, for any tendency of the one to fall in value would be checked by the increased demand; and any tendency of either metal to rise would be checked by the lessening use of it. Thus, according to the theory of bimetallism, two metals, if admitted freely to the mint, must preserve a value ratio corresponding closely to the mint ratio, their fluctuations in value being so slight that they will not be noticed by people in general, although they may yield some profit to dealers in bullion.

If we grant the validity of the law of bimetallism, it should be noted that it does not, strictly speaking, yield a double standard of value, but an alternating standard. At one time gold would be the price denominator; at another time silver. However, if experience should prove that the value ratio of the two metals did not fluctuate appreciably, but corresponded practically with the mint or coinage ratio, both would be money so far as the people in general are concerned, and the standard would be a double one.

147. The soundness of the bimetallic theory depends upon two circumstances: (1) Does the money demand for a metal have any effect upon its value? (2) Can the supply of either metal be so increased that, in spite of the increased demand for it for use as money, its value will continue below the mint ratio? One of these questions is theoretical, the other practical.

The theoretical question we have already considered in the chapter on Metal Money. The free coinage of a metal into money undoubtedly does increase the demand for it and so tends to increase its value. The opponents of bimetallism have shown a disposition to deny this proposition, but there is no escape from it. The money demand on which the bimetallists harp is a real demand and does tend to increase the value of any metal to which it is applied. If the world should decide to use fiat money made of paper, based in no way upon gold, the value of gold would undoubtedly fall, for all the monetary stock would be thrown upon the market for use in the arts. Mining operations would be adjusted to the art demand, as now to the combined art and money demand; less gold would be needed each year than is now needed, and its value would not be great enough to keep in operation many of the mines that are now worked. Nor can it be doubted that if several nations should decide to admit silver as well as gold freely to their mints, the demand for silver would be greatly increased and a rise in its value would inevitably follow.

148. We cannot give so positive an answer to the practical question. During the past the mining of gold and silver has been a most uncertain occupation. We know that the production of these two metals follows the same law as the production of other commodities, tending to increase as their value rises; but it is not within the power of man to foresee the limit of that increase, for the amount of gold and silver which the earth contains is a matter of conjecture.

In favor of bimetallism, however, the fact should be noted that at no time in the past has the supply of either metal increased with such rapidity that either could have taken the place entirely of the other if universal bimetallism had prevailed, or even if half a dozen of the leading nations of the earth had continued on the bimetallic basis down to the present day. While we can know nothing about future possibilities in the production of gold and silver, yet the world's experience in the past is certainly on the side of the bimetallist in so far as this point is concerned. If there were any certainty that the production of gold and silver in the future would proceed on lines resembling those of the past, we should be justified in the conclusion that bimetallism is theoretically and practically feasible if maintained at a given ratio by several powerful nations.

Furthermore it should be noted that no serious ill effects would follow an attempt at international bimetallism, even though the supply of one metal should increase so rapidly as to drive the other entirely out of use. If a number of powerful nations should decide to permit the free coinage of silver and gold, either real bimetallism would ensue, the two metals remaining at a value corresponding to the mint ratio, or one metal would entirely disappear and monometallism result. The bimetallist is convinced that the second result would not take place, and the monometallist could not complain if it did.

## Advantages of Bimetallism

149. Bimetallists claim for their policy two distinct advantages over monometallism, — (1) that it will yield a more stable standard of value, and (2) that it will give the world a common par of exchange.

The argument that bimetallism will yield a more stable standard of value than monometallism is based on the probability that two metals will not change in value in the same direction and in the same degree at the same time. A discovery of new gold mines may increase the output of gold and so give its value a downward tendency, but gold and silver production are not related and there is no reason why at the same time there should be an increased output of silver. The decline in the value of gold, therefore, would be retarded somewhat by the reluctance of silver to follow. Under such circumstances the money demand would be transferred from silver to gold, so that gold could not fall in value without dragging silver down with it. Therefore, a rise of prices resulting from the increased supply of gold would not be so great as it would be if gold alone were the money metal.

On the other hand, if the output of either metal fell off so that its value tended to rise because of a lessened supply, its rise would be checked by the transfer of the money demand to the other metal. The shifting of the money demand from one metal to the other would make changes in the demand and supply relations of each metal and so affect the values of both. Consequently a fall of prices caused by the lessened production of either metal would not be so great as under a monometallic system.

A fall of prices under bimetallism would lead to an increased search for both metals, for both would have increased value; furthermore a fresh discovery of either metal would tend to check a decline of prices. On the other hand, prices are no more likely to rise under a bimetallic system than under a monometallic, for a rise of prices would mean a fall in the value of both metals and would discourage the production of both alike.

Theoretically, therefore, since stability of the standard is the most important quality it can possess, the argument is in favor of bimetallism.

150. If gold and silver bimetallism were successfully maintained by a number of countries, the exchange relation between the two metals would be practically unchanging, and the payment of balances between countries upon different monometallic standards would be simplified. At present the exchange relations of gold and silver are constantly fluctuating. In countries using silver as money the price of gold is changing from day to day; and the same is true of the price of silver in countries using gold as money. If a man in the United States wishes to buy goods in China, he must do considerable figuring before he can find out just how much gold he must give for goods quoted to him in Chinese money. If he sells goods to China, he will be paid in silver, and he must take into account the possibility of a decline in the gold price of silver before the transaction is completed.

Trade between countries having different money standards is not, however, so much hampered by fluctuations in relative money values as is often asserted. The risks of loss are counterbalanced by chances of profit, and both are now assumed by bankers and other dealers in foreign exchange; so that a New York exporter, before he ships a consignment of goods to China, knows exactly how much gold or New York funds he will receive for his draft on the silver country. Stability of relationship between the value of gold and silver, while it would not greatly increase the trade between gold and silver countries, would, nevertheless, reduce the expenses of that trade somewhat and remove some of the inconveniences attending it.

A par of exchange between gold and silver is desirable, however, less because of its convenience to business men and traders than because of the stimulus it would give to the flow of capital between countries having different standards. Capital seeks the best rate of profit and cares very little about geographical or political boundary lines. But men do not like to invest capital in a country with whose monetary standard they are not familiar. In the United States, for example, capitalists shrink from investments in a silver-standard country. Since 1873 the gold value of silver has declined 50 per cent, and men are fearful lest the decline may continue and their investments come back to them in a "depreciated" money. This fear, which discourages the investment of American capital in the countries of Central and South America, would not exist if the exchange relation between gold and silver were stable.

Furthermore the experience of countries on a silver basis during the last twenty years has not been such as to encourage in them a disposition to borrow from countries on a gold basis. Under the English administration of India several hundred million pounds sterling have been borrowed by the Indian government for internal improvements, so that for some thirty years India has been obliged to send to England each year the equivalent of £16,000,000 in gold in payment of interest. Until 1893 India was on the silver basis. As the gold price of silver fell in England the silver price of gold rose correspondingly in India, becoming in 1893 double what it was in

1873. India's remittance to England, consequently, represented twice as much silver in 1893 as in 1873. Since silver was the money of India, the debt to England called for twice as much money and necessitated the imposition of higher money taxes. It was commonly assumed in England that the value of silver had fallen; but to the people of India it seemed that the value of gold had risen. Whatever caused the variations in the value relations between gold and silver, these variations made India's position as a debtor more difficult and tended to discourage the negotiation of loans payable in gold.

The demand for indemnity from China by European nations on account of the "Boxer" outrages is a more recent illustration of the disadvantage of a lack of parity between silver and gold. Very soon after China had agreed upon the sum of money to be paid, the gold value of silver fell and the amount of silver necessary to make the payment in gold grew larger. The Chinese government, since that country is on a silver basis, estimated the amount of the indemnity in the money of China, and naturally objected to the sum being increased by what seemed to the Chinese mind a change in the value of gold.

## French Experience with Bimetallism

151. In favor of bimetallism it is urged that experience has proved it practicable. The bimetallist points to the experience of France with bimetallism from 1803 to 1873, and to the fact that during that entire period the market values of gold and silver, despite great disparity in their relative production, were always near the ratio set by the French law of 1803, which provided for the free coinage of gold and silver at 15.5 to 1. A kilogram of pure gold was coined into 3100 francs, of which the government retained a seigniorage of nine francs before 1854, and of six francs for some years thereafter; a kilogram of silver was coined into 200 francs, the government keeping as seigniorage three francs until 1854, and thereafter one and a half francs. For seventy years France coined all the gold and silver bullion

that was presented to its mint, and coins of both metals during most of this period were in concurrent circulation. The market values of the two metals did not always correspond with the French mint ratio, but the variations were not great enough at any time to cause France to lose all of its gold or all of its silver. After 1864 France was in league with several smaller nations in Europe, for most of whom the French mint furnished coins of gold and silver. This league, known as the Latin Union, embraced France, Italy, Greece, Belgium, and Switzerland, and the money demand of these nations was applied with equal force to both gold and silver. The nations now constituting the German empire in Europe were upon a silver basis, so that all the German demand was applied to the white metal. The money demand, however, of England and Portugal bore upon gold. The French money demand acted as a sort of balance in Europe, bearing heaviest upon that metal which showed a tendency to fall in value below the coinage ratio.

The bimetallist claims that the close correspondence of the market ratio with the French coinage ratio was not fortuitous, but was due to the fact that the money demand for the two metals was kept in equilibrium by the bimetallic law of France. Even after the great influx of gold from California and Australia in the fifties, the market ratios between the two metals fluctuated very little. In the year 1800 the earth was producing fifty ounces of silver to every ounce of gold; between 1852 and 1858 it produced only five ounces of silver for every ounce of gold. Despite this great change in the production ratio, the value ratio of the two metals was only slightly affected. The increased supply of gold after 1850 undoubtedly tended to lessen its value, and for ten years the French mint was busily coining the yellow metal; large quantities of gold were imported into France, and large quantities of silver were exported to India and the East. Between 1850 and 1865 there happened in France exactly what the theory of bimetallism would lead us to expect, namely, an increased coinage of the cheaper money metal, gold, and a lesser use of the other. However, France did not lose all of her silver even under this great strain; and the two metals of the world retained during this period a value ratio remarkably close to the ratio established by the law of France.

152. The monometallist meets this argument from French experience in various ways. He first makes an absolute denial of the contention that the so-called "mint demand" has any effect whatever on the value of the metal. No mint, he says, can add the slightest value to any metal; a mint merely puts a stamp upon a coin to signify the quantity of metal it contains, but if a coin is hammered on an anvil its value is not lessened. This is true, but it does not prove that the value of a metal is not due partly to the fact that the mint is open to its coinage. Free coinage makes the value of the metal uncoined practically the same as when coined, and so tends to cause an increased demand for it, thereby increasing its value. A mint does not add value to the metal, but the demand for it, growing out of the fact that it can be freely minted into money, does give it a value which it otherwise would not possess.

The monometallist holds, furthermore, that the steadiness of the value ratio of gold and silver between 1800 and 1870 was due not to the French law but to the fact that there was very little addition to the world's stock of either metal during that period, and very little change in the market demand for either. According to his view, it was a mere coincidence that the values of the two metals remained comparatively stable. The monometallist also points out that between 1803 and 1873 the market ratio seldom, if ever, exactly corresponded with the French coinage ratio. During the greater part of the period the market ratio was higher than 15.5 to 1, silver being slightly overvalued; but after 1850, on account of the cheapening of gold, the ratio fell below 15.5 to 1.

153. This lack of exact agreement between the market ratio and the French coinage ratio is regarded by some writers as a complete refutation of the bimetallic theory. The monometallist, however, fails to take into consideration a circumstance which tended to keep the market ratio of gold and silver always a little different from the French coinage ratio, namely, the

seigniorage exacted on French coins. Since a man who took a kilogram of gold to the mint before 1854 received only 3091 francs, the government retaining nine francs as a tax, it is evident that the mint price of gold bullion in France could have been only 3091 francs. No man in France could exchange a kilogram of gold bullion for more than this sum of money unless extraordinary scarcity of the metal caused a great increase in the demand for it. A kilogram of silver bullion was coined into 200 francs, but since the government retained three francs, the mint price was only 197 francs. The French mint, therefore, should have forced not a ratio of 15.5 to 1 between gold and silver bullion but a ratio of 197 to 3091, i.e. 1 to 15.69. This is the ratio which the market values of gold and silver bullion should have borne in France if the bimetallic law were the all-important factor in establishing their value. The ratio of 15.5 to 1 was the coinage ratio; the ratio of 15.69 to 1, on account of the seigniorage charges, was the corresponding bullion ratio. Curiously enough, the market ratio of gold bullion, during the greater part of the period when bimetallism was in force in France, hovered about this point. The fact, therefore, that it seldom stood at 15.5 to 1 favors the argument of the bimetallist.[1]

## BIMETALLISM IN THE UNITED STATES

154. The experience of the United States between 1792 and 1873, when this country was legally upon a bimetallic basis, is frequently cited as evidence that bimetallism is impracticable. In 1792, following the recommendation of Alexander Hamilton,

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[1] It is worth noting that the seigniorage charges upon gold and silver rendered possible comparatively wide fluctuations in value before any profit could arise from the melting of coins of either metal. Since silver coins were normally 1.5 per cent more valuable than silver bullion, the latter could increase 1.5 per cent in value with respect to gold before the melting of silver coins for export in exchange for gold would become profitable. Nor would any gold coins be exported unless a kilogram of gold were worth more than 3100 francs. Thus there was possible under the French law a fluctuation of the market ratio between 15.45 to 1 and 15.74 to 1 without any danger that the coins of either metal would be withdrawn from circulation.

the first Secretary of the Treasury, Congress authorized the free coinage of gold and silver at the ratio of 15 to 1. It was soon discovered, however, that gold was worth more than fifteen times as much as silver. In 1803 the French law authorized the coinage of the two metals at 15.5 to 1. Since the French law estimated gold more highly than did the law of the United States, gold as money was more highly valued in France than here, its coinage value with respect to silver being greater. So gold was attracted from the United States to France and to the rest of Europe, where the market ratio more nearly corresponded with the French coinage ratio. The United States, as a result, was unable to keep its new gold money in circulation. The only gold coins that remained here were those of foreign nations, which were so worn that they were worth less as bullion than as coin. This attempt of the United States to maintain bimetallism, therefore, was a failure, but the bimetallist can contend on good grounds that its failure was due to the strength of bimetallism in France, and that it illustrates the force of the bimetallic law rather than its weakness. It might be argued that if the money demand of the United States had been greater than that of France and the rest of Europe, our bimetallic law of 1792 would have established the value relation between the two metals and have drawn to this country as much of both metals as was required.

In 1834 the coinage law of the United States was changed, the gold dollar being debased some 7 per cent. The new ratio of 16 to 1, which was thus adopted, underestimated silver. It then became more profitable to have gold coined in the United States than to export it to Europe, but the coinage of silver in this country became unprofitable, for it possessed a higher purchasing power in France with respect to gold than in the United States. After 1834, therefore, our silver was exported to the Old World and we kept in circulation only clipped and debased silver coins.

The failure of the United States to maintain bimetallism at either of the ratios adopted cannot fairly be cited as an illustration of the impotence of the so-called law of bimetallism. The

United States has had no real experience with the law. It was impossible that this country and France should both maintain bimetallism upon different ratios at the same time; success in France made failure here absolutely certain. If the money demand of this country had been equal to the money demand of France, i.e. if the same amount of metal had been required in each country, the coinage of France would have been mainly gold and the coinage of the United States mainly silver during the first period; after 1834 the situation would have been reversed. If the bimetallic law in this country had provided for the same ratio that prevailed in France, there seems no reason for doubting that bimetallism would actually have prevailed in this country, or that the coins of both metals would have been in concurrent circulation.

### Relative Values of Gold and Silver

155. Chart I on page 230 presents graphically the value relation maintained between gold and silver throughout the nineteenth century. An upward movement of the chained line indicates a rise in the value of silver with respect to gold, and a downward movement a decline in the relative value of silver. The figures at the left indicate the gold price of silver in the United States at the coinage ratio of 16 to 1, and the value ratios of the two metals. The dotted line at 15.69 marks the ratio at which the French law tended to hold the two metals. As the French seigniorage charges were reduced in 1854 from nine to six francs per kilogram of gold, and from three to one and a half francs per kilogram of silver, the bullion ratio corresponding to the coinage ratio after that year was 15.59. The heavy black line and the heavy dotted line show respectively the production of gold and silver throughout the century.

It is impossible for an unprejudiced person, it would seem, to consider the facts represented graphically on this chart without coming to the conclusion that between 1800 and 1870 some extraordinary force was at work upon the values of gold and silver, tending to hold them at a fixed relation, and that

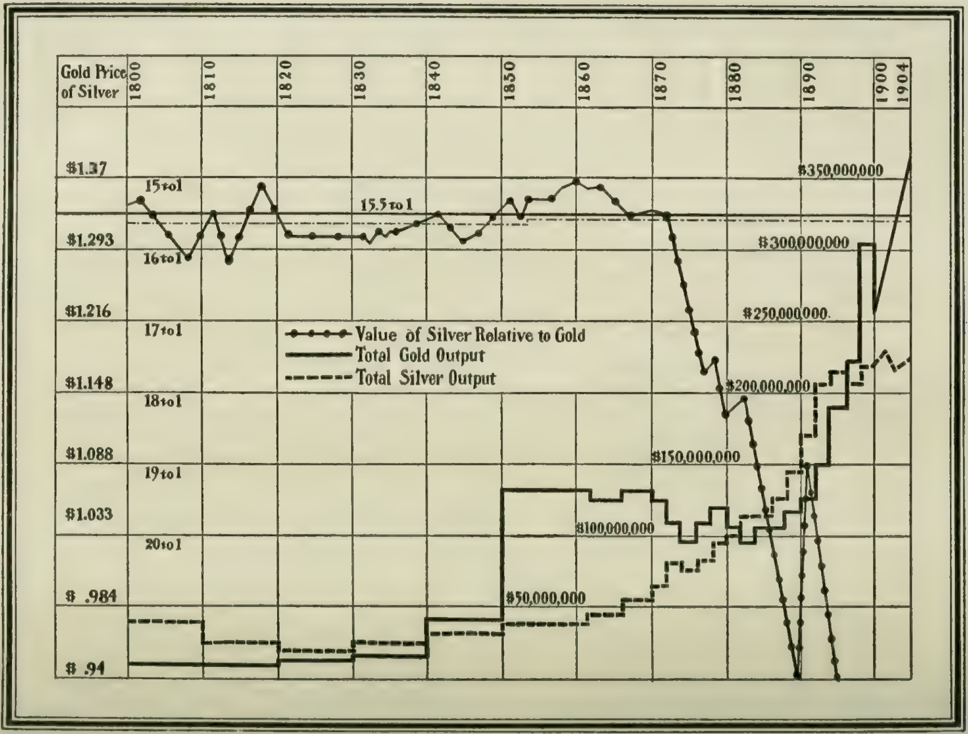
Gold Price of Silver
1800
1810
1820
1830
1840
1850
1860
1870
1880
1890
1900
1904
$1.37
$1.293
$1.216
$1.148
$1.088
$1.033
$ .984
$ .94
15 to 1
15.5 to 1
16 to 1
17 to 1
18 to 1
19 to 1
20 to 1
$350,000,000
$300,000,000
$250,000,000
$200,000,000
$150,000,000
$100,000,000
$50,000,000
Value of Silver Relative to Gold
Total Gold Output
Total Silver Output

CHART I

this force ceased to operate after 1870. Throughout most of the first period the value ratio fluctuated between 15 to 1 and 16 to 1. Between 1820 and 1850 it was pretty constantly a little above 15.69, the bullion ratio corresponding to the French coinage ratio, a fact indicating that the total demand for gold (including the monetary demand of France) was a trifle greater, in proportion to supply, than the total demand for silver.

The production of silver between 1800 and 1850, although not large, considerably exceeded that of gold. We should naturally expect, therefore, that silver would tend to be relatively the cheaper metal, and that under a bimetallic system the larger monetary use would be made of it. The statistics of the French mint (see table on page 232) show that during this period the coinage of silver amounted to $855,600,000, and of gold to only $267,200,000, and that no year passed without the coinage of both metals. Even during the three years when the ratio was a fraction above 16 to 1 (1808, 1812, and 1813) the coinage of gold fell off but little, — a fact explicable undoubtedly by the seigniorage charges, which made French coins more valuable than bullion. The view of some writers that the statistics of coinage in France "do not always tell the story of the operation of the compensatory law" of bimetallism,[1] because the coins might have been hoarded or sold upon the bullion market, is erroneous, for French coins throughout this period were usually worth more as money than as bullion and were not sold upon the bullion market.

The decline in the relative value of silver after 1816, when the ratio moved toward 16 to 1, undoubtedly reflects an increase in the value of gold consequent upon England's adoption of the gold standard, which caused a heavy drain upon the world's stock of gold.

After 1850, for twenty years, silver was relatively the dearer metal, and when one notes the great change in the relative production of the two metals, one can only marvel at the comparative stability of their value ratio. Between 1800 and 1850 the production ratio ranged between 1.9 to 98.1 and 6.6 to 93.4, the average for the first forty years of the century being 2.5 to 97.5, while between 1850 and 1860 it averaged 18.3 to 81.7, and during the next decade 13.5 to 86.5. Despite the great outpour of gold, its value with respect to silver declined but little, the ratio never falling to 15 to 1.

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[1] W. A. Scott, *Money and Banking*, p. 326.

156. The cause of this wonderful stability in the value ratio of gold and silver we find in the French statistics of coinage. The following table gives in dollars the coinage of the French mint by decades, 1803 to 1870.[1]

COINAGE OF THE FRENCH MINT

| | Gold | Silver |
|---|---|---|
| 1803–1810 . . . . . . . . . | $43,800,000 | $63,200,000 |
| 1811–1820 . . . . . . . . . | 131,000,000 | 154,800,000 |
| 1821–1830 . . . . . . . . . | 19,000,000 | 213,800,000 |
| 1831–1840 . . . . . . . . . | 35,200,000 | 240,400,000 |
| 1841–1850 . . . . . . . . . | 38,200,000 | 183,400,000 |
| Total, 1803–1850 . . . . | $267,200,000 | $855,600,000 |
| 1851–1860 . . . . . . . . . | $856,600,000 | $52,200,000 |
| 1861–1870 . . . . . . . . . | 430,200,000 | 89,400,000 |
| Total, 1851–1870 . . . . | $1,286,800,000 | $141,600,000 |

During the first half of the century, it will be noticed, the coinage of silver was more than three times that of gold. This fact is sometimes cited by zealous monometallists as evidence that the bimetallic law was not operative and did not influence the values of the two metals. Silver, it is said, was overvalued; the French coinage ratio was not the market ratio, and hence, in obedience to Gresham's law, gold flowed away from France and cheap silver crowded into its place. That seems a one-sided view of the matter. The true explanation is that gold between 1800 and 1850, for reasons already noted, tended to rise in value with respect to silver, but the French monetary demand, being applied mainly to silver, checked that tendency and held the value ratio close to the coinage ratio. The market values of the two metals, instead of being independent of the French monetary demand, as is often tacitly assumed, were largely the product of that demand. As a principle operative at this time, Gresham's law was subordinate to the law of bimetallism.

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[1] Dr. Pierson, the Dutch economist, comments on these coinage statistics as follows: "From 1803 to 1820 there were nine years in which the ratio was greater and nine years in which it was less than 15.5; one would, therefore, expect that the quantities of both kinds of coin minted would be about equal; and so they were. . . . From 1821 to 1847 gold was constantly getting dearer; the bulk of the money coined during that period should therefore have consisted of silver; and so it did." — *Economics*, p. 417.

This conclusion is confirmed by the events of 1851–1870. During this period gold tended downward in value, but the bimetallic law operating in France would not suffer it to decline except as it dragged silver with it. The coinage of silver, except for small change, almost ceased in France, the entire monetary demand of that country bearing upon the yellow metal, the coinage of which amounted during this period to $1,286,800,000. As a result, the market values of the two metals fluctuated but little with respect to each other. The net exports of silver from France between 1850 and 1870 equaled $345,000,000, and the net imports of gold $1,073,200,000. The people began to suffer inconvenience from lack of silver coins, and France would doubtless have been forced to debase its subsidiary silver coins, as did the United States in 1853,[1] had the large production of gold continued a few years longer.

In so far as facts can establish any principle governing human affairs, the French experience with bimetallism seems to establish the law of bimetallism and demonstrate the practicability of the joint standard. It also proves, however, that bimetallism cannot be successfully maintained by a small group of nations, their monetary demand not being sufficient to offset the demand of other nations or to absorb without inconvenience all the stock of either metal that may be offered.

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[1] See Chapter XVI, Section 234.

### FALL OF SILVER AFTER 1870

157. Turning again to the chart on page 230, how shall we account for the great and rapid decline in the gold value of silver after 1870? This question has been during the last twenty years the cause of a controversy almost as hot as that waged over slavery before the Civil War; and even now, although the battle has ended in irretrievable defeat for one set of disputants, it is doubtful if an impartial review can be written or if such a review would receive unprejudiced hearing. In this and the next chapter the reader will find a statement of the facts involved and a brief examination of the arguments employed on both sides.

According to the monometallist, the ardent advocate of the single gold standard, the fall in the gold price of silver after 1870 represented a fall in the value of silver due to increased production and lowered cost. To the retort that the decline began before the world's stock of silver had been greatly increased, the output of gold being still much greater than that of silver, the monometallist has usually replied that the value of silver fell because of an anticipated increase of the supply, transcontinental railroads in the United States having made many new mines accessible.

By the bimetallist the fall of silver was explained by a single word, "demonetization." In 1871 the new German empire suspended the free coinage of silver, taking as its monetary unit the mark of 5.53 grains of gold. France and her allies of the Latin Union, fearing lest they should be flooded with Germany's silver, as they had been between 1850 and 1870 with Australian and Californian gold, suspended the free coinage of silver in 1874, their standard of prices thereby becoming the gold franc of .2903 grams (4.4799 grains). In 1873 Holland suspended the free coinage of silver, which had been her standard since 1847, and in 1875 definitely adopted the gold standard, the unit being the gulden of 9.332 grains of gold. In 1873 the United States, although then on a paper basis, passed from legal bimetallism to legal monometallism, the right of free coinage being withdrawn from silver; and in 1875 a law of Congress ordered the resumption in 1879 of specie payments, "specie" meaning gold. Spain adopted the gold standard in 1874, and Sweden, Norway, and Denmark in 1875. The transference of the monetary demand of all these countries from silver to gold, the bimetallists hold, accounted for the fall in the gold price of silver; it increased the demand for gold and lessened the demand for silver, and corresponding changes of value resulted.

That the fall of silver from $1.30 per fine ounce in 1873 to $1.15 in 1880 was caused by the disuse of silver as standard money, i.e. by its demonetization, will probably be admitted now by many persons who denied it a few years ago in the heat of political controversy. The contention that silver was not demonetized because all these nations continued to coin silver is not sound. Silver is not standard money unless it is freely coined; when coined on government account or when the coinage is restricted, silver coins are mere token or credit money, ranking in the same class with coins of copper and nickel.

The notion that silver began to fall in value because of lowered cost of production, or because of an anticipated increase of supply, must be rejected. So long as a metal is freely coined into money only actual changes in its supply can cause its value to fall. An increasing supply, by leading to a rise of prices, may cause an expansion of credit and so bring about a fall of value out of proportion to the increase, but before this can happen there must have been an actual increase.

Between 1880 and 1889 the gold price of silver fell from $1.15 to $.935 per ounce.[1] This decline undoubtedly represented, not a fall in the value of silver, but a rise in the value of gold, due to what has been called the "scramble for gold" by the nations of Europe. During this period Italy, Austria, and

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[1] When the value ratio of gold is 16 to 1 the gold price of silver is $1.2929 + per ounce; that sum being one sixteenth of $20.67, the sum into which an ounce of pure gold is coined. If the ratio rises to 17 to 1, the gold price of an ounce of silver is found by dividing 20.67 by 17; and so on. Taking silver as the base, we reach the same result as follows: since 371.25 grains of pure silver are coined into $1.00, an ounce of silver (480 grains) can be coined into 480 divided by 371.25, or $1.2929 +.

Russia, which had been for many years on a paper or fiat basis, began preparing for the adoption of the gold standard, and purchased several hundred million dollars' worth of gold. European nations already on the gold standard added to their stocks of gold, and the United States increased its stock from $352,000,000 in 1880 to $680,000,000 in 1889 ($26,000,000 less than in 1888). The monetary demand of Europe and the United States increased more rapidly during the period 1880–1890 than ever before because of the expansion of trade and industry made possible by the construction of great railway systems during that and the preceding decade. That the supply of gold, the production of which was declining, did not keep pace with the increasing demand for it, and that its value rose in consequence, is demonstrated by the downward trend of prices in all gold-standard countries, beginning in 1873 and continuing until 1896.

158. During the decade 1890–1900 the demand for silver twice received artificial interference. In 1878 the United States began the coinage of two million dollars' worth of silver per month under the provisions of the Bland-Allison law; in 1890 the law was changed, the monthly purchases of silver being increased to 4,500,000 ounces (coinage value, $5,818,000). It was generally supposed that the law of 1890, under which the government would absorb nearly all the silver output of the United States, would permanently raise the value of that metal. The result was disappointing. The gold price of silver rose for a few months in 1890, but soon began to decline, and in 1892 stood at 87 cents as against 93 cents in 1889.[1] The second artificial cause affecting the value of silver after 1890 was the suspension of its coinage by India in 1893. In the same year the United States ceased to purchase silver, the act of 1890 being repealed. The effect on the gold price of silver was great and immediate, the price falling from 78 cents in 1893 to 63 in 1894. In 1902 the gold price of silver had fallen to 52 cents per ounce. By 1906 the price had risen again to 67 cents; the average for 1921 was 63 cents.

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[1] The silver legislation of 1878 and 1890 is considered in more detail in Chapter XVI.

### Unconscious Bimetallism before 1800

159. Prior to the nineteenth century what might be called unconscious bimetallism prevailed in most of the countries of the world. Silver and gold were both regarded as precious metals, and either was employed for coinage purposes according to the whim or convenience of sovereigns. It was imperfect bimetallism, for trade in the precious metals was greatly restricted by law, and their coinage was not free, as at present. Not until 1666 did English law grant the right of free and gratuitous coinage to the people; previously it had been a prerogative of the sovereign. Coins were frequently worth more than the metal of which they were composed, yet there was constant tendency toward equivalence of value, for the coins of one country, as a rule, were current in other countries, so that the supply of money was in the long run regulated by the value of the metals.

Great looseness of ideas prevailed with respect to the nature and value of money. Prior to the nineteenth century the compensatory action of the law of bimetallism does not appear to have been understood or even discussed; nor was there any appreciation of the fact that the value of the precious metals was affected by their use as money. The simple principle known as Gresham's law, which explains only certain phenomena of bimetallism, seems to have been the only bimetallic principle that had been grasped by students or finance ministers. There was no recognition of the necessity for a common ratio for the coinage of gold and silver, and consequently two neighboring states would coin the metals at different ratios and then attempt by law to keep both metals in circulation. Frequent debasement of the coinage by the petty rulers of Europe, who in this way robbed their people, added to the confusion.

160. England's monetary evolution furnishes a good illustration of unconscious cerebration in finance. The law definitely establishing bimetallism in 1666 fixed a ratio which undervalued silver as compared with the ratios prevailing upon the continent. England was therefore unable to keep any of her new silver coins in circulation. In spite of a law providing capital

punishment for any person melting or exporting coins, all the new silver was sent across the Channel. The hardship suffered by the shopkeepers and people of England generally on account of the scarcity of small change is picturesquely described in chap. xxi of Macaulay's *History of England*. In 1696 Parliament sought to remedy the monetary evils by a recoinage. At that time the only silver coins in circulation were the old coins of the realm, which were so clipped and worn that their bullion value was no greater than their money value. The question at once arose, Shall the recoinage of silver be upon the basis of these light-weight silver coins, the average depreciation of which was estimated at 25 per cent, or upon the basis of the law of 1666, which provided for the heavier coin? This question excited a memorable controversy, in which the two most important figures were John Locke, the distinguished philosopher, and Sir William Lowndes, Secretary of the Treasury. Lowndes recommended[1] that the denomination of all silver coins should be raised 25 per cent; that the shilling, for example, should be equal to 15 pence instead of 12. His proposal was tantamount to the adoption of the continental coinage ratio, but in his argument he did not take advantage of this fact. His recommendations were rejected, and those of Locke, who advised strongly against any debasement of the coinage, were adopted.

It has been commonly assumed that the weight of the argument lay with Locke and that the adoption of his plan was a triumph for honest money. It is not clear, however, that Lowndes was in the wrong, or that his plan involved debasement. Since the new silver coins, if rated with gold as he recommended, would have had a money value corresponding with their bullion value, they would have remained in circulation; and since business contracts had been made on the basis of the old silver currency, creditors would not have been defrauded when compelled to take the new coins at a higher ratio.

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[1] Lowndes' proposals are found in his *Reports containing an Essay for the Amendment of the Silver Coins*, London, 1696. Locke's reply is entitled *Further Considerations concerning the Raising the Value of Money*.

The outcome of the recoinage was not encouraging. At great expense England put her mint to work to provide the country with a new stock of silver money, but there was no power in England strong enough to keep it there, for silver with respect to gold had a higher value as money on the continent than it had in England.

In 1717 England again changed the coinage ratio between gold and silver, but did not give silver the rating which it had at the continental mints. Thus England, although nominally upon a bimetallic basis during the eighteenth century, was really upon a gold basis ; and the English Parliament, when it formally adopted the gold standard in 1816, merely put into law what had been the custom for over a hundred years. Gold had become the money of England, not because of any reasoned or conscious preference in the beginning, but because of the inability of English financiers to comprehend the laws governing the use of two metals as money.

Attention has been called to the chaotic condition of the European money systems prior to the nineteenth century, and to the apparent lack of any conscious systematic effort to attain real bimetallism, because the opponents of bimetallism seem to draw unfair conclusions from the monetary confusion which then prevailed. Anything like real bimetallism must have been impossible prior to the nineteenth century; for different nations were coining gold and silver at different ratios, and thus the nations in which the money demand was weakest were certain to be stripped of one or the other of these metals. The advantages of bimetallism can never be attained unless a group of the most powerful nations agree to coin gold and silver at the same ratio. That such an agreement would bring to bear upon these metals a demand strong enough to keep them at the ratio agreed upon is morally certain. The value relation between the two would be linked by a bond that could not be broken except by an increase in the supply of the metals far beyond anything the world has ever yet seen.

After 1900, however, these theoretic considerations possessed little or no practical importance, for the increase in the output of gold gave gold-using nations such an abundance of money and caused such a rise of prices that international bimetallism as a political issue was dead. During nearly all the first two decades of the twentieth century the problem was not how to keep prices from falling, but how to guard against the intoxicating influence of rising prices. Chapter XVII discusses the price situation during and after the World War.

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# CHAPTER XII

## THE SILVER QUESTION

161. Events that led to the agitation for the free coinage of silver in 1896. 162. The arguments presented by the champions of silver. 163. The gold standard held responsible for the evil of falling prices. 164. Fundamental defects of the theory of money upon which the case for silver was based. 165. Falling prices quite as probable under silver monometallism as under gold monometallism. 166. A statistical inquiry into the value variations of gold and silver after 1870. 167. It would appear that silver did not decline in value between 1873 and 1893, and that, therefore, it was more stable than gold. But during this period special causes were at work. 168. Fluctuations in the gold price of silver do not prove that it lacks stability of value. 169. The silver partisan magnified the burden imposed on debtor classes by an appreciating standard. 170. Inconsistent arguments advanced by the defenders of the gold standard. 171. Why the free coinage of silver would have caused a large importation of silver. 172. The contention that the free coinage of silver would increase the foreign trade of the United States will not bear analysis. 173. The free coinage of silver would probably have worked injury to the laboring classes. 174. The argument based on India's apparent control of the wheat market after 1873. 175. When two countries are using different metals as money a fall in the value of either temporarily affects the trade of both. 176. Present outlook for the use of silver as standard money.

161. During the last twenty-five years of the nineteenth century the sharp fall in prices which followed the general suspension of the free coinage of silver in the United States and Europe made the money question a political issue in almost every country whose monetary unit was gold. The "silver question" now possesses no political importance, for the rise of prices since 1897 has destroyed the main argument upon which the movement for the free coinage of silver was based. An examination, however, of some of the arguments that were advanced for and against the remonetization of silver is worth while, for it serves to show the student of the money question how theoretical principles may be applied in the solution of a practical problem.

We will briefly review the admitted facts. As explained in the last chapter, after 1870 the United States and most of the nations of Europe suspended the free coinage of silver. In this country the act of 1873, by which the demonetization of silver was effected, attracted no public attention at the time; it was primarily intended as a codification of our coinage laws, and was not generally regarded as having far-reaching significance.[1] The country was then upon a fiat-money basis, the depreciated greenback — then at a discount of 14 per cent as compared with gold — being the standard of prices. No metal money was in circulation. Even before the greenback period, silver having been underestimated in the bimetallic law of 1834, there were few silver dollars in the country.[2] Naturally, therefore, the failure of the act of 1873 to mention the silver dollar attracted no general notice and caused little discussion.

In 1873 the gold price of silver averaged $1.297, and a silver dollar of 371.25 grains was worth a little more than a gold dollar. After 1873 the gold price of silver almost steadily declined, until in 1896 it sold at 67 cents, a price representing a value ratio of 31 to 1. At the same time the prices of commodities also fell. The Falkner index number of prices in the United States in 1872 stood at 127 figured in gold. In 1891 this index number stood at 92, and between 1891 and 1896 there was a further fall of prices of about 25 per cent. The total change in the price level between 1873 and 1896 amounted to nearly 50 per cent in all countries using gold as the basis of their monetary systems. For example, in 1873 the greenback price of wheat averaged $1.73 per bushel, which made the gold price about $1.52; in 1894 its average price in gold was 61 cents. The prices of other agricultural commodities suffered a corresponding decline. The prices of manufactured articles also fell, but the reduction here was by no means uniform, the prices of many manufactured articles being sustained by combinations among manufacturers, by patents, and by tariff changes.

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[1] The act of 1873 declares that the gold dollar of 25.8 grains standard "shall be the unit of value." After enumerating the various gold coins that may be minted, it provides for the free coinage of silver "trade dollars," to contain 420 grains standard silver, and for the coinage by the government of subsidiary silver coins, all these to be legal tender only for amounts not exceeding $5.00. The old silver dollar of 412.5 grains standard is not mentioned; its coinage, therefore, was prohibited by the following: "That no coins, either of gold, silver, or minor coinage, shall hereafter be issued from the mint other than those of the denominations, standards, and weights herein set forth."

[2] Only 8,031,238 silver dollars were coined between 1792 and 1873, and most of these, for reasons explained in Chapter XVI, were immediately melted or exported.

The rate of interest during these years also declined, as shown in a preceding chapter. The rates charged upon farm mortgages were less affected than those paid by business men and by large corporations which sold bonds to the investing public. For example, the average rate on double-name paper in New York in 1872 was 6 per cent, while in 1895 it was 2 per cent; and railroads which borrowed money at 7 and 8 per cent in the seventies were able to refund their indebtedness at 4 and 5 per cent in the eighties.

## The Argument for Silver

162. Let us first hear the case of the silver man. His theory of money was simple and easily understood. He held that the value of money varied with its quantity, and that the value had risen and prices fallen after 1873 because the law, by the demonetization of silver, had reduced the country's money supply by one half. The fall in the gold price of silver he attributed entirely to the demonetization of silver, and he held, therefore, that if silver were again admitted freely to the mints, its price would immediately rise to a parity with gold at the ratio of 16 to 1. The demand for money he regarded as practically infinite in strength; as being strong enough to lift any metal to the value given it by a bimetallic law. In support of this position he was able to quote the great philosopher, John Locke, who had declared that the "vent," or market, for money was infinitely great; and also John Stuart Mill, the leading English political economist, who had said that all the goods in the market constituted the demand for money.

The silver man showed that throughout all the centuries during which its free use as money had been permitted silver had maintained a comparatively stable value relation with gold. Some of the more enthusiastic silver agitators, pointing to the fact that the mines of the earth had for several centuries yielded about sixteen times as much silver as gold, contended that the two metals existed in the bowels of the earth in this ratio, and that the country in abandoning this natural ratio was flying in the face of Providence. Although the gold price of silver in 1896 was only 67 cents an ounce, which made an ounce of gold worth thirty-one ounces of silver, it was claimed that the remonetization of silver would bring upon it such a powerful demand that its value would rise to $1.29 per ounce, the price which represents parity at 16 to 1.

163. The single gold standard was attacked in several different ways. It was held to be altogether responsible for the fall of prices which set in after 1873. The silver men made the most ingenious and effective use of the evil results of this fall of prices. They caused discontent among the farmers by telling them that it had been brought about by conspiracy among their "gold-bug creditors" in New York and London in order that the value of the gold they received upon their bonds and mortgages might be increased. A western farmer struggling to lift a mortgage was easily made to see that the burden of his debt had been increased by the decline in the price of farm products. "The crime of 1873," as the law of that year was called, was injuring him, he was told, in the same way that an enlargement of the bushel would hurt him if he were under contract to deliver through a series of years a certain number of bushels of wheat.

The farmer was also invited to consider how difficult the payment of the national debt was becoming. At the end of the Civil War it amounted to $2,800,000,000 and might then have been paid with 1,400,000,000 bushels of wheat, which was worth at that time $2.00 a bushel. This national debt was mainly in the form of bonds which the government had sold for greenbacks worth only fifty cents on the dollar in gold. Owing to the conspiracy among the "gold bugs" of the East, Congress had enforced the payment of these bonds in gold, so that the government was paying back to its creditors twice as much as it had received.

But this was not all, for that same conspiracy had increased the value of gold itself. The real wealth of the country lies in such commodities as wheat. The gold payments already made on account of the national debt had been sufficient to buy, at the prices prevailing when the payments were made, 4,000,000,000 bushels of wheat, an amount nearly three times as great as the original debt when figured in wheat. Nevertheless the debt had not been paid, for there remained still due $1,500,000,000, which represented, at the then low price of wheat, 3,000,000,000 bushels, or over twice as much as was owed in the beginning.

It is not strange that this reasoning, which made the debt in goods grow in spite of the fact that it had been twice paid, should have a powerful influence upon the agricultural population. Wheat was not the only agricultural product that had fallen in price. The price of almost everything that the farmer could raise for the market had been cut in two. The advocates of silver held that its free coinage would cause a tendency of prices upward, and that this would atone for the injustice worked by the fall of prices after 1873. It was only fair, they argued, that the debtor who had been robbed should now get back some of his due.

A different argument was addressed to the laboring classes of large cities. The three years following the panic of 1893 had been marked by great industrial depression. The charitable societies of all the large cities of the United States had been taxed to the utmost to provide food and shelter for men who could get no work. The silver men attributed the panic of 1893 to the scarcity of money and held that the depression of industry was a direct result of the fall of prices. A government report in 1891 had stated that the rate of wages was as high in 1891 as it was in 1873. "Of what advantage," asked the silver man, "is a high rate of wages to a laboring man out of a job? Industry is starving for lack of money.

Nothing will open the factories and mills but an increase in the money supply, which will set capital in motion and give work to the people."

To business men, as well as to farmers and producers generally, the silver advocate addressed an argument based upon the apparent prosperity of India. India had become our chief competitor in the wheat markets of the world. Until 1893 her money had been silver, and the friend of silver held that the wheat growers of India, on account of the falling price of silver, had been able to undersell the farmers of the United States at Liverpool year after year, without themselves making any change whatever in the price of their wheat. The Indian exporter of wheat, who sold it at from three to four rupees[1] per bushel in 1873, had averaged the same price during the full twenty years, and with the money he had received he had each year been able to buy about the same quantity of goods or pay the same amount of debt, for general prices did not rise in India prior to 1893. But four rupees of silver after 1873 represented a lessening amount of gold, so that an American farmer, in order to compete with the Indian producer, had been obliged to lower his price year after year. Thus, when the price of silver had fallen until a rupee of 165 grains of pure silver was worth only 30 cents in gold, the American farmer in order to compete with Indian wheat at three rupees was obliged to sell his wheat at 90 cents. The advocates of the free coinage of silver, using illustrations of this sort, argued that the adoption of the silver standard would give us a tremendous advantage over foreign nations using gold as money. The free coinage of silver would not only have the effect of a protective tariff, lessening our imports of foreign goods, but would also stimulate our exports by giving our producers an advantage like that which the producers of India had enjoyed.

Various other arguments were employed by the partisans of silver, but they were not important, although they made some impression upon voters. It was urged, for example, that silver was the poor man's money and gold the rich man's, and that free coinage of silver would put more money into the pockets of the people. A good deal of emphasis was also laid upon the possibility of cornering the world's supply of gold. It was pointed out that all the gold in the world could be got into a room of small dimensions, and that a number of wealthy men, by getting control of the supply of gold, could force the poor people to sell their products at any prices the rich might name.

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[1] The rupee contains 165 grains of pure silver and in 1873 was equivalent to 44 cents. After 1873 its gold value declined, until in 1893 it was worth only 26 cents in gold. India's experience with the rupee is described in Chapter XIV.

### Review of the Argument

164. Some of the above arguments are hardly worth considering. Neither metal can be called the poor man's money. Since he has but little purchasing power he is able to use but little money of any kind, and he needs pieces of small denominations. These in the form of credit money can be furnished him under the gold standard quite as well as under the silver standard.

As for the possibility of cornering money, the difficulty is commensurate not with its quantity but with its value. If the United States were using silver as money, even though its value with respect to gold were as 16 to 1, the total value of the money supply in the country would be no greater than it is at present, although its bulk would be sixteen times greater. A syndicate of rich men, if there were any motive for so doing, could corner the world's stock of silver as easily as they could the world's stock of gold. Furthermore, if the world were using gold and silver as money on a basis of international bimetallism, the total value of the world's money supply would be no greater than it is at present,[1] and the task of getting possession of any large part of it would be no greater than it is at present.

We need not give much space to the peculiar theory of money advanced by the champions of silver. The idea that the demand for money is infinite, comparing with the demand for other goods as the hand of Providence does with the hand of man, — a comparison made by Mr. Harvey in his *Coin's Financial School,* — we have already considered in Chapter IV, where it was shown that this demand is as limited and definite as the demand for any tool which men use. The strength of the money demand which could have been brought to bear upon silver if the United States mints had been opened to it in 1896 can be approximately estimated. At that time the total circulation or supply of currency in the United States, of which only about one third was gold, amounted to $1,500,000,000. Five hundred million silver dollars might have been coined and substituted for the gold without causing any inflation of the currency and without changing the level of prices, if we assume that general confidence in the standard would not have been disturbed. But if more silver had been added, the supply of currency would have been increased and prices would have risen above the level of gold prices.

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[1] It was shown in Chapter II that the supply of money value does not depend on the quantity of money, i.e. the supply of money units.

The contention that the free coinage of silver was suspended as a result of a conspiracy is absurd. The practical financiers of the world have only recently begun to show any appreciation of the influence exerted on the value of the precious metals by their use as money.

165. When advocates of silver criticised the gold standard on the score of falling prices, they called attention to a defect that is common to all kinds of metal money. As we have seen, the values of gold and silver are never stationary but are always either rising or falling through long cycles of years. The silver man assumed that gold was destined always to increase in value, and that prices, therefore, were bound to continue downward.

Yet even while he was making this argument forces were at work to bring about a change in the value of gold and cause prices to rise. The increase in the value of gold after 1873 was due to extraordinary circumstances, the demand for it having been so greatly increased by its adoption as the standard of prices in most of the civilized countries of the world. That gold will ever again be subjected to such a strain is not possible.

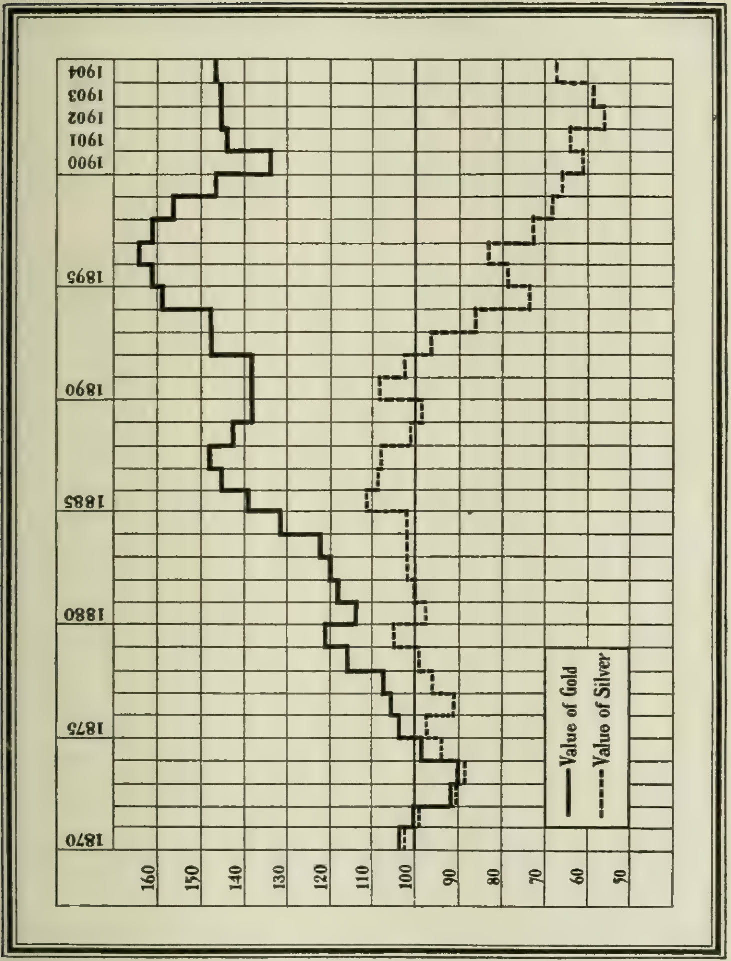
1870
1875
1880
1885
1890
1895
1900
1901
1902
1903
1904
160
150
140
130
120
110
100
90
80
70
60
50
Value of Gold
Value of Silver

CHART II

## Value Changes of Gold and Silver

166. Chart II, on page 249, shows the divergent paths traveled by gold and silver after 1870. The heavy black line shows the value of gold as computed from Sauerbeck's index number. The dotted line shows the value of silver, calculated by comparison of its gold price with changes in the value of gold. The chart is derived from the last two columns of the table printed on page 251.

Column I gives the Sauerbeck index number from 1870 to 1903, that is, the average prices of forty-five commodities, the base line of 100 being the average prices for the period from 1867 to 1877. Column II shows changes in the gold price of silver, the base line of 100 being 60.84 pence, which was the average London price of an ounce of silver during the period from 1867 to 1877. The numbers in column III, showing changes in the value of gold, are the reciprocals of those in column I. The numbers in column IV, showing changes in the value of silver, are derived from the data supplied by columns I and II. For example, in 1885 the average gold price of the forty-five commodities was 72, and the gold price of silver was 79.9; hence the value of silver with respect to the forty-five commodities, as compared with that prevailing during the period from 1867 to 1877, had risen in proportion as 79.9 exceeds 72, or 11 per cent.[1]

The decline in the values of both metals for three years after 1870 represents the general rise of prices before the panic of 1873. During the years 1874 and 1875 both rise sharply, but silver parts company with gold, increasing less in value. Gold continues to rise after 1875 until 1879, when the revival of industry led to an expansion of credit and a fall in the value of gold, its efficiency as money being increased. After 1880 the value of gold rose quite steadily, from 113 in 1880 to 147 in 1887, but declined during the next two years to 139. There was little change during 1889, 1890, and 1891, but after that it began a rapid

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[1] I am indebted for the suggestion of this table and chart to Helm's *Joint Standard*, p. 84.

## VALUE CHANGES OF GOLD AND SILVER

| | I | II | III | IV |
|---|---|---|---|---|
| | Sauerbeck Index No. (Average Gold Price of 45 Commodities) | Gold Value of Silver in London (60.84 pence Assumed as 100) | Value of Gold | Value of Silver |
| 1867–77 | 100 | 100.0 | 100.0 | 100.0 |
| 1870 | 96 | 99.6 | 104.0 | 103.7 |
| 1871 | 100 | 99.7 | 100.0 | 99.7 |
| 1872 | 109 | 99.2 | 91.7 | 91.0 |
| 1873 | 111 | 97.4 | 90.0 | 88.7 |
| 1874 | 102 | 95.8 | 98.0 | 93.9 |
| 1875 | 96 | 93.3 | 104.0 | 97.2 |
| 1876 | 95 | 86.7 | 105.2 | 91.3 |
| 1877 | 94 | 90.2 | 106.3 | 96.0 |
| 1878 | 87 | 86.4 | 115.0 | 99.3 |
| 1879 | 83 | 84.2 | 120.5 | 104.4 |
| 1880 | 88 | 85.9 | 113.6 | 97.6 |
| 1881 | 85 | 85.0 | 117.6 | 100.0 |
| 1882 | 84 | 84.9 | 119.2 | 101.2 |
| 1883 | 82 | 83.1 | 122.0 | 101.3 |
| 1884 | 76 | 83.3 | 131.5 | 101.6 |
| 1885 | 72 | 79.9 | 139.0 | 111.0 |
| 1886 | 69 | 74.6 | 145.0 | 108.0 |
| 1887 | 68 | 73.3 | 147.0 | 107.7 |
| 1888 | 70 | 70.4 | 142.8 | 100.6 |
| 1889 | 72 | 70.2 | 138.8 | 98.9 |
| 1890 | 72 | 78.4 | 138.8 | 108.9 |
| 1891 | 72 | 74.1 | 138.8 | 102.9 |
| 1892 | 68 | 65.4 | 147.0 | 96.0 |
| 1893 | 68 | 58.3 | 147.0 | 85.7 |
| 1894 | 63 | 47.0 | 158.7 | 74.6 |
| 1895 | 62 | 49.0 | 161.0 | 79.0 |
| 1896 | 61 | 50.6 | 163.9 | 83.0 |
| 1897 | 62 | 45.3 | 161.0 | 73.0 |
| 1898 | 64 | 44.2 | 156.2 | 69.0 |
| 1899 | 68 | 45.0 | 147.0 | 66.0 |
| 1900 | 75 | 46.5 | 133.3 | 62.0 |
| 1901 | 70 | 44.7 | 142.8 | 64.0 |
| 1902 | 69 | 39.6 | 145.0 | 57.0 |
| 1903 | 69 | 40.7 | 145.0 | 59.0 |

ascent, averaging 147 in 1892 and 1893, 158 in 1894, 161 in 1895, and 164 in 1896. Since then the trend has been downward, the average being 161 in 1897, 156 in 1898, 147 in 1899, and 133 in 1900. Thus gold rose in value between 1873 and 1893 from 90 to 147, an increase of 63 per cent; and between 1873 and 1896, the year in which its rise of value was checked, it rose from 90 to 164, an increase of 82 per cent.

167. With respect to silver the chart brings out three facts of interest. (1) The value of silver did not decline after 1873, as is commonly supposed, but for twenty years was above the level of 1873. This means, assuming the Sauerbeck index number to represent fairly the course of commodity prices, that the average purchasing power of an ounce of silver between 1873 and 1893 was greater than in 1873. We should expect, therefore, if we could obtain a correct index number of prices in silver-standard countries during that period, to find that prices did not rise before 1893 but rather tended downward. (2) The chart shows that the value of silver in 1892 was very nearly what it was in 1873; and (3) that the suspension of free coinage in India and the repeal of the purchase clause of the Sherman Act in the United States, both happening in 1893, were followed by a rapid and great decline in the value of the metal.

As regards the relative stability of the two metals, the chart, superficially viewed, indicates that silver is the more stable, for prior to 1893 it departed from the base line less than gold. But we can draw no conclusion in favor of silver, for we cannot ignore the fact that special causes were operating upon the values of both metals, one tending to lift gold, the other tending to depress silver. If bimetallism had not been abandoned after 1870, and if Germany had continued the free coinage of silver, it is probable, but not certain, that silver would have risen in value at an equal pace with gold, and that the rise of both metals would have been considerably less than the advance made by gold under the influence of the combined money demand of Europe and the United States.

168. The fact that the gold price of silver after 1873 was subject to monthly fluctuations cannot be regarded as evidence

that silver lacks stability of value over short periods; it proves merely that the demand for it in Liverpool and New York was variable, but does not prove that the price level in silver-standard countries was quickly shifting from month to month. The adjustment of prices to the value of the standard, as we have seen, is a slow process. An index number of Mexican prices would doubtless show that between 1873 and 1893 the price level in Mexico varied from month to month no more than the price level in the United States. An analogous case is furnished by our experience with the greenback between 1861 and 1879; changes in the price level during this period by no means corresponded with changes in the gold value of the greenback. We shall consider this point more fully in the chapter on Fiat Money.

169. We need not consider in much detail the silver argument which was enforced by an analysis of the public debt. The silver partisan was quite right in his statement that the burden of our national debt had been increased by the fall of prices, but he exaggerated the increase. He failed to mention that the productive capacity of the people during the two decades following the Civil War had increased at a marvelous pace, that several thousand miles of new railroads in the western states had lowered the cost of producing wheat, and that great improvements in agricultural machinery had practically doubled the productive capacity of the average farmer. A bushel of wheat did not represent as much labor in 1896 as in 1873. Throughout the entire domain of industry great cheapening forces had been at work, and debtors were able without any increasing effort to give increasing quantities of goods to their creditors in the payment of each dollar of debt.

Nevertheless there was some truth in the position taken by the bimetallist. The fall of prices had exerted a depressing influence upon industry and had added to the burdens of long-time debtors a weight not counterbalanced by their increased power of production. But for the rapid increase in the value of gold in the seventies and eighties it is quite possible that the railroads of the country would have found their mortgage indebtedness a lighter load, and that some of the numerous foreclosures and receiverships would have been prevented. It is reasonable to believe also that combinations of capital into "trusts" would have been less notable in the eighties had not the markets for goods been under an influence which business men failed to comprehend and wrongly attributed to overproduction and excessive competition.

## Fallacious Arguments for Gold

170. The defenders of the gold standard argued that the fall of prices did not injure the farmer or any one else, because people, although forced to sell their products at lower prices, were nevertheless able to buy correspondingly more with every dollar they received. This argument is not sound, for it ignores the fact that a fall of prices is never uniform. This aspect of the subject has been covered in Chapters VI and VIII and need not be reconsidered here.

It was generally assumed by the partisans of gold that the free coinage of silver would yield a fifty-cent dollar, for the bullion in the silver dollar was at that time worth only 50 cents. In this assumption they were mistaken. The free coinage of silver would have increased the demand for silver and would have caused its value to rise. There would have been a lessened demand for gold, so that the value of gold would have tended downward. The United States would have taken from the markets of the world several hundred million dollars' worth of silver and would have thrown upon those markets some five hundred million dollars' worth of gold. This disuse of gold and increased use of silver must have caused a change in the value relation between the two metals. As to how great that change would have been we can only speculate.

The fallacy in the position taken by the defender of the gold standard was shown by an argument which he advanced almost in the same breath with the other. He held that this country would be "deluged by a flood" of silver from all countries of the world. It is quite probable that large quantities of silver would have come to the United States had our mints been opened to it, but it certainly would not have come here unless drawn by some rise in its value. If our silver dollar were to remain a fifty-cent dollar, silver being no more valuable under free coinage than before, there would be no reason why more silver should come to the United States.

171. The partisan of silver had a ready reply to the objection that his plan would deluge the United States with silver. "Where," he asked, "will this silver come from? Mexico has none to spare, nor India, nor China. France and Germany have a lot of silver, but all of it is coined at the ratio of 15.5 to 1, and that silver could not be sent here to be coined at 16 to 1 without loss. How would it be possible, then, to increase our money supply at the rate which the gold men predict?" This reply was plausible but fallacious. It is true that Mexico, India, and China needed all the silver they had and were using it all as money; but if the free coinage of silver in the United States were going to double its value, as was claimed, then Mexico and other countries on the silver basis would no longer need all their silver for use as money, for the level of prices would be lowered 50 per cent and only one half as much money would be needed for the transaction of their business. These countries, therefore, if the silver man's own prediction had been realized, could have exported half their silver to this country.

As for the silver in use by France, Germany, and Russia, it is all credit money, and these governments, like the United States, have more of it than they are able to keep in circulation. The value of a credit instrument does not depend upon the material upon which the promise to pay is stamped but upon the confidence which is felt in the government or person that makes the promise. The finance ministers of Germany, France, and Russia are well aware that silver is an expensive material out of which to make credit money, and would doubtless be glad to sell their silver coins as bullion if something approximating the old price could be obtained. They could then substitute gold or bank notes for them.

172. The contention that the free coinage of silver would increase the foreign trade of the United States, stimulating our exports especially, was based on the assumption that prices would continue to rise after the free coinage of silver had been adopted. Although the first effect of this free coinage might possibly have been a rise of prices, it is impossible to say with certainty what would have happened. It is quite probable that panic and monetary chaos would have been the first result, no man knowing how much money he was worth or what price he should ask for what he had to sell. But if we assume that the country did finally pass from the gold basis to a silver basis, or to a joint basis of gold and silver, a sharp rise of prices must have occurred. The value of silver would have risen until the monetary demand of the United States for that metal had been satisfied.[1] There would, however, be no reason for believing that prices in this country would continue to rise after the new level had once been attained. On the contrary, the increased demand for silver for monetary use in the United States might have given its value a constant upward tendency, so that prices in this country, after the change, might have tended downward. The free coinage of silver, therefore, was quite as likely to continue our fall of prices as to check it, only the fall would have started from a higher level than that prevailing in 1896.

The free coinage of silver in this country would have been almost certain to cause a rise of prices in all the countries of Europe, for the lessened demand for gold in this country, taken together with the increased supply of that metal in Europe, would have tended to reduce its value. So England, the country most hated by the silver party, would have received greater benefit from the free coinage of silver here than the United States itself, for prices in England would have shown a marked upward tendency, whereas prices in the United States, after the chaos of the change of standards was over, would have been more likely to tend downward than upward.

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[1] This rise in the value of silver would have produced a period of falling prices in all countries already upon the silver basis. General bankruptcy and ruin would quite possibly have been brought about in Mexico and Central and South America by a rapid fall in the prices of all goods.

173. The argument which the silver man addressed to the laboring classes was not altogether unsound. It cannot be contended that the panic of 1893 was caused by the appreciation of gold. Panics come during periods of rising prices as well as during periods of falling prices, and their causes are complex, most important among them being the undue expansion of credit and unwise use of capital in the production of goods. Nor could the gold standard properly be held responsible for the existence of the large army of unemployed in the years following the panic, for all panics are followed by several years of industrial stagnation. Nevertheless, as we saw in the chapter on The Importance of Price, an appreciating standard does tend to discourage the *entrepreneur* and to lessen the demand for both labor and capital. If the advocate of silver could have guaranteed to the workingman a period of rising prices as a result of the free coinage of silver, his assault upon the gold standard would have been justified. But, as we have seen, he offered only a change to silver monometallism, and there was no more certainty of rising prices under that standard than there had been under gold monometallism. There would indeed have been at first a sharp rise of prices, but this would have hurt the laboring man instead of helping him, for the rate of wages would have risen much more slowly than the prices of goods. The free coinage of silver, therefore, meant for the workingman a cheapening of the dollar in which his wages were paid and no immediate advance in the rate of wages.

## Silver and Wheat

174. As for the argument based on India's apparent command of the wheat markets of the world after 1873, that also contained several grains of truth. If two competing countries are using different monetary standards, say silver and gold, a change in the value relation between the two metals will give a temporary stimulus to the exports of that nation whose money

metal is falling in value with respect to the other. This stimulus is due to the maladjustment of prices that always accompanies a change in the value of a money metal. Whenever the value of silver falls in Europe or the United States because of an increasing supply or diminished demand, the decline is indicated by a fall of the gold price of silver before the general price level in silver-standard countries has been much affected. Before 1893, for example, a decline in the price of silver in Europe could not affect prices in India until additional silver had been added to India's money supply and put into circulation among the people. Consequently, when the gold price of silver fell because of a fall in the value of that metal, the producers of India were under no inducement on that account to charge higher prices for their goods, for their money costs of production had not increased. An ounce of silver meant as much to them as it had meant before the decline of the London or New York quotation for silver ; but since it now took less gold to buy an ounce of silver, it was possible for Europeans to buy a given quantity of India's products with less gold than formerly. In consequence American and European producers who were competing with Indian producers were obliged to lower their prices, although the only cause therefor seemed to be a change in the relation between gold and silver.

Such a condition would of course be temporary unless the fall in the value of silver were continuous. India would increase her exports until a balance had been created requiring an importation of silver sufficient to raise her price level to parity with the value of silver in Europe and the United States. Thus when the value of silver was falling India's exports of goods were always a little larger than they otherwise would have been, the excess representing the value which India gave to the world in payment for the additional silver required in her circulation.

When the gold price of silver fell because of a rise in the value of gold, as most commonly happened between 1873 and 1893, the effect upon India's export trade was more apparent than real or permanent, and was due to the maladjustment of prices in gold-using countries. When the gold price of silver changes, exporters and importers are usually unaware of the cause and do not seek to discover it; it is commonly assumed in gold-using countries that the value of silver has fallen, and in silver countries that the value of gold has risen. So whenever the gold price of silver fell after 1873, whatever the cause, the first effect was always the same, namely, importers in gold countries were able to get goods from India by the expenditure of less gold than before the fall, and consequently American and European producers in competition with India were obliged to lower their prices. But when the change was due to a rise in the value of gold, the value of silver not declining, there was no reason why India should import an unusual amount of silver, for India did not then need any addition to her money supply. Nevertheless the exporters of India had a temporary advantage in the world's markets. Without any sacrifice they were able to cut under the gold price which had prevailed for the same goods. But their advantage could be only temporary, for prices in the gold countries, since gold was increasing in value, soon fell to a level which placed the European and the American exporter on a par with the Indian exporter. Any long delay in the adjustment of prices in gold countries would continue India's advantage and give her an unusual balance of trade, but the resultant importation of silver would lift her price level and so deprive her exporters of their advantage over exporters in gold countries. In fact such an importation of silver, after prices in gold countries had become adjusted to the new value of gold, would put Indian exporters at a disadvantage for a time and perhaps cause an exportation of silver.

175. So when two countries are using different metals as money a fall in the value of one causes the country using it to increase its exports by an amount sufficient to pay for the additional quantity of metal needed in its money supply. If the value of one rises, the exports of the country using the other metal as money will apparently be stimulated but will not in the long run be increased in quantity. The free coinage of silver could have given the United States no advantage in the markets of the world unless silver had continued to depreciate,

in which case the United States would simply have increased its exports by an amount sufficient to pay for the additional silver which it needed as money. It is doubtful if such an increase of exports could be called advantageous, for we should have been giving to the world larger and larger quantities of wheat, cotton, etc., in exchange for a cheapening metal. There was no certainty, however, that even this doubtful advantage would have been gained, for silver, if we coined it freely, would have been quite as likely to rise in value as to fall.

The student must not imagine that the changes in price levels which lead to changes in the exports or imports of various countries are ever so large as to attract general attention. He may not be able by studying the statistics of prices in different countries to discover any noticeable effect of changes in the value relation of gold and silver, for a fractional variation of price is sufficient to give a new trend to international trade movements. Between 1873 and 1893, when the gold price of silver was declining, the export trade of India did not always show a gain. This is what we should expect, for the fall in the gold price of silver during most of that period was due to an increase in the value of gold rather than to any decline in the value of silver. The value of silver did not begin to fall until the closing of India's mints in 1893, and after that date changes in the value of silver ceased to have any effect upon the prices of India and so ceased to have any influence upon India's trade.

176. Since 1893 the use of silver as money has steadily declined. The gold standard has been adopted by Russia, Austria, Japan, India, Peru, Costa Rica, Ecuador, and Siam. The "silver question" is dead, and the use of silver as standard money, it now seems probable, will soon be everywhere discontinued. In 1905 Mexico suspended the free coinage of silver and adopted what is known as the "gold-exchange standard." By limitation of the supply of currency and by the sale of foreign exchange at a fixed rate it is proposed to keep the Mexican dollar, or peso, at par with 50 cents in the money of the United States. It is hoped that China and other silver-standard

countries may be persuaded to adopt the same policy so that all countries may have a common par of exchange. In this movement the United States has taken prominent part, having sent an expert commission to Mexico and China to urge the advantage of keeping silver coins at a fixed value relation with gold.[1]

The Mexican experiment will be watched with much interest by students of the money question. The peso contains about 377 grains of pure silver, and at the price of that metal prevailing in 1905 (about 60 cents per ounce) was worth about 47 cents in gold. In order to maintain it at par with 50 cents in gold the government will not only regulate the coinage and so control the supply but will also sell exchange on New York and London at the rate of one gold dollar for two pesos plus the cost of gold shipments. As there are in circulation outside of Mexico large quantities of Mexican dollars whose value for several years has been less than 50 cents in gold, their importation into Mexico at a profit is prevented by a customs duty. If the plan is successfully carried out, Mexico will practically be on the gold basis, prices rising and falling with changes in the value of gold. The currency will consist of silver coins and of bank notes redeemable in silver, but all will in reality be credit money indirectly redeemable in gold. The reform has the advantage of not requiring any change in the customs of the people; they will continue to use the silver coins to which they are accustomed, but these will no longer fluctuate in value with respect to gold. To the common people gold will appear to have suddenly acquired stability of value, for the price of gold in Mexico will not change.

Should silver rise in value with respect to gold until its price in the United States is above 64 cents an ounce, the bullion value of the Mexican peso will exceed 50 cents in gold, and a certain quantity of pesos will in consequence be melted or exported. The resultant contraction of the currency will raise the value of the peso as a coin to a par with its value as bullion.[1]

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[1] An American commission, consisting of Professor J. W. Jenks, C. A. Conant, and H. H. Hanna, at the request of Mexico and China, and accompanied by a Mexican commission, visited Europe in 1903, meeting commissioners from Great Britain, France, Holland, Germany, and Russia. Professor Jenks, as commissioner of the United States, also visited China. The reader will find an interesting discussion of this subject in the *Report of the Commission on International Exchange* (government publication, Washington, 1903).

## LITERATURE

Several hundred books and pamphlets for and against the free coinage of silver were published in the United States during the political controversy in 1895 and 1896. Few of these possess any value. The following are typical pro-silver books: W. H. HARVEY, *Coin's Financial School;* WHARTON BARKER, *Bimetallism*. The arguments most used by the opponents of silver will be found in the following: HORACE WHITE, *Coin's Financial Fool;* J. L. LAUGHLIN, *Facts about Money*.

Historical works: F. W. TAUSSIG, *The Silver Situation in the United States* (New York, 1896); G. M. COFFIN, *Silver from 1849 to 1892;* A. B. HEPBURN, *History of Coinage and Currency in the United States;* report of Director of the Mint for 1896.

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[1] In 1906 the price of silver rose above 64 cents per ounce fine, and the exportation of silver pesos began. As the law permitted the free coinage of gold pesos (one gold peso equaling the Japanese yen of 750 milligrams of pure gold, or about 50 cents), Mexico was being rapidly supplied with gold coins, and would probably now be firmly established on the gold basis if its monetary system had not been deranged by a series of revolutions.

# CHAPTER XIII

## FIAT MONEY: ILLUSTRATED BY THE GREENBACK

177. Supply of fiat money regulated artificially. 178. Erroneous view that money must derive its value from that of the material constituting it. 179. Fiat money may be made out of a material possessing value as a commodity. 180. If Congress should suspend the free coinage of gold, the gold eagle would become fiat money. 181. Depreciated credit money is the kind of fiat money with which the world has had most experience. 182. Confidence is only one of several factors in the value of depreciated credit money. 183. When credit money has depreciated and become the fiat standard of prices its value is not the result of any conscious comparison with the old standard. 184. Fiat money has real value and performs all the functions of money. 185. The issue of depreciated government notes during the Civil War. 186. Four facts to be taken into account in a study of prices during the greenback period. 187. Demand for the greenback as money during the Civil War. 188. A comparison of the course of prices with changes in the money supply during the greenback epoch. 189. During the War Period doubt about the redemption of the greenback was an important factor in its value. 190. Between 1865 and 1875 the greenback was fiat money, possessing no credit-money characteristics. 191. During the resumption period the greenback gradually lost its fiat characteristics. 192. The course of prices compared with changes in the total circulation. 193. Examination of the view that the value of the greenback was determined by its gold price. 194. Greenback prices of all imported commodities must have closely followed fluctuations in the price of gold. 195. The greenback price of gold embodied expert estimates as to the future value of the greenback. 196. The gold price of greenbacks cannot be explained on the ground that it was the product of an investment demand.

177. Fiat money is money the supply of which is regulated artificially. Its value is determined solely by the demand for and supply of money, and is independent of the value of the commodity or material out of which it is made. The material for fiat money may be a comparatively valueless substance like paper or a valuable metal like gold or silver. Money made of paper inscribed "This is a dollar" or "This is a pound sterling" would be pure fiat money. Fiat money may perform all the services of money; through its use as a medium of exchange it may become the standard of prices (or value so called), the basis for credit, and the standard of deferred payments.

No country has ever consciously adopted fiat money. All nations, so far as we know, have employed as money something having value apart from its use as money, — something possessing so-called intrinsic[1] value. The shells which we assumed in Chapter I to have been the first money used by primitive man were so employed because of the value they possessed as ornaments. Their value in the beginning was due entirely to their utility for personal adornment, but as they came into use as money they gained a new utility and became subject to an additional demand, and their value tended to increase as a result. They were commodity money so long as their use as money was free and unrestricted.

If we suppose that after a certain people had become habituated to the use of shells as money they should cease to care for shells as ornaments, having found a more beautiful or more novel substitute, the shells would then possess value only because of their use as money. They would, however, still be commodity money if the free use of shells as money were permitted.

But suppose that the tribe using these shells, finding that the supply was increasing too rapidly, decided to put a cabalistic mark upon each shell in their stock on hand and to refuse thereafter to accept any as money unless so marked. If this were done, a distinction would at once arise between marked and unmarked shells. The marked ones would be wanted on account of their convenience as a medium of exchange; the unmarked would be wanted by nobody and would have no value. The marked shells would be pure fiat money. Their value would no longer be dependent upon the abundance of shells in general or upon the difficulty of finding them, but would be due entirely to the demand for money among that primitive people, and would vary as their demand for money varied. If the people, fascinated by the mysterious purchasing power of these marked shells, and not understanding its cause, should increase their quantity on the ground that thus each man would have more shells and so all would be enriched, such an increase in the number of marked shells would have an immediate effect upon their exchange power. If these people employed credit in no form whatever, the purchasing power of the shells would decline in proportion as their quantity grew; if the number of shells were doubled, each would buy only half as much as before. The purchasing power of the total number of shells could not be made greater by any addition to their quantity, for the value of each shell would fall in proportion as the number increased.

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[1] An incorrect use of this adjective. Value, being dependent on human wants, cannot be an intrinsic or inherent property of anything. When men say that the gold dollar possesses "intrinsic" value they mean that it has a commodity value apart from its use as money.

178. Some writers on money appear to doubt the possibility of fiat money, insisting that money always derives its value from that of the commodity or material constituting it. It is asserted, for instance, that in the case of a people using shells as money, if they possess no value as ornaments, there will be no reason why a man who has found a new stock of shells should begin to use them as money, since by so doing he would lessen the purchasing power of those already in use. It is claimed that he would hold the shells back and so prevent their having any effect upon the prices of goods.[1] This objection assumes that men understand the nature of money and that they will, therefore, voluntarily refrain from doing anything which will lessen its value. We will not pause to discuss this assumption, for it makes no difference in the argument. Since the shells, according to the hypothesis, possess no value except as a medium of exchange, what selfish advantage would a man find in holding back the new stock which he has found? There is only one way that he can make them serve him, and that is by getting rid of them in exchange for what he wants. So long as he keeps them in his possession or buries them in a cave for fear of depressing the value of money, they are of no more account to him than so much sawdust. If he should understand the effect that his shells would have on prices, he might endeavor to exchange them so adroitly as to minimize his loss

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[1] See *Annals of the American Academy*, March, 1897, "The Quantity Theory of Money," by W. A. Scott.

from the rise of prices, but that he would get rid of them is certain. That is exactly what men do with money at the present time when they have more of it than they want.

179. We assumed in the preceding illustration that the shells had lost their utility as ornaments and that therefore they would be valueless but for their use as money. This supposition was not a necessary one. Let us assume that the shells retained their charm as ornaments but that on account of their increasing abundance it was found desirable to limit the number that could be used as a medium of exchange. The shells so marked would be fiat money, and their value would rise as the demand for money increased. The potential utility of the marked shells as ornaments would not be the cause of their value except under one condition, namely: if their value as money tended to fall below the value of the unmarked shells, some of them would be used as ornaments and thus the downward tendency of their value would be checked. In a case of this sort we might say that such money combined in some measure the properties of both fiat and commodity money, for while the supply could be diminished automatically it could only be increased artificially.

180. That fiat money may be made out of material possessing value may be shown by an illustration that will perhaps tax the reader's imagination less than our hypothetical shell money. Let us suppose that the world's output of gold increases so rapidly that a great fall in the value of gold is imminent, and that Congress, to prevent a formidable rise of prices, repeals the law permitting its free coinage. The gold coins of the United States would immediately become fiat money, for no matter how great the increase in the world's stock of gold, the quantity of gold coins would remain unchanged, and their value would tend to rise as the demand for money increased on account of increasing business and population. The relation that would then exist between gold and money is shown by Diagram VI (page 267).

Here we have on the left a square representing 258 grains of standard gold, and on the right a circle representing a gold eagle, a coin containing 258 grains of standard gold. The only connection between the two is by way of the melting pot, and it is evident that no coins will be melted unless the value of uncoined gold tends to rise above that of coined bullion. The value of the coin depends upon the demand for money in the United States; as that increases the value of the coin must rise, for the supply, we have assumed, cannot be increased by the free coinage of gold. The rise in the value of the coin would not affect that of the bullion, for the latter could not be converted into coin. Money of this kind, even though made of gold, would be fiat money, for its supply would be artificially regulated and its value would be independent of the value of gold. If for any reason the value of gold should rise until 258 grains were worth $10, this money would then be only semi-fiat, for any further advance in gold would result in the melting down of coins, so that coins and bullion would rise in value together.

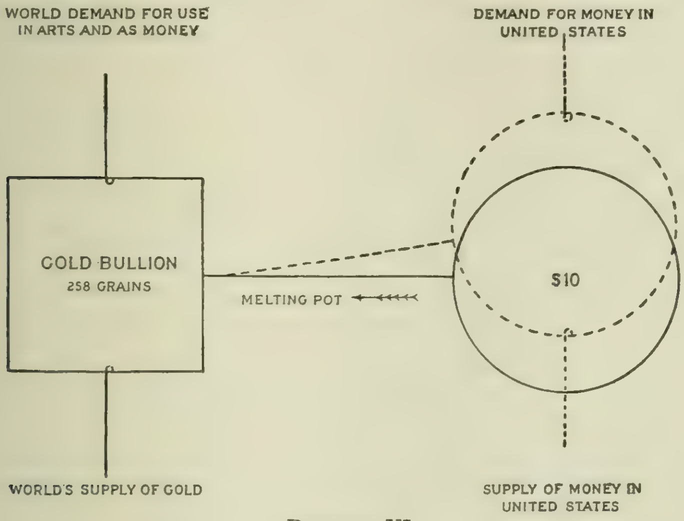
WORLD DEMAND FOR USE IN ARTS AND AS MONEY
DEMAND FOR MONEY IN UNITED STATES
GOLD BULLION
258 GRAINS
MELTING POT
$10
WORLD'S SUPPLY OF GOLD
SUPPLY OF MONEY IN UNITED STATES

DIAGRAM VI

The world has had experience with gold and silver fiat money. Indeed, during the Middle Ages the coins of various European countries possessed fiat characteristics; for as the free and unlimited coinage of gold and silver was not permitted, the supply of money was not automatically regulated by the abundance or scarcity of the precious metals.[1] An interesting illustration of silver fiat money was furnished by India between 1893 and 1897, an account of which is given in Chapter XIV.

## Depreciated Credit Money

181. The fiat money with which the world has had most experience has been irredeemable and depreciated credit money, either bank notes or government notes. Credit money, if redeemed on demand, and if the people have confidence in the issuing bank or government, enjoys the same exchangeability as money itself, in lieu of which it serves as a common medium of exchange. But if it is irredeemable and is issued in excess of the monetary need, credit money falls in value, losing some degree of its acceptability and being quoted at a discount.[2] In the same way a man's promissory note or the mortgage bond of a railroad is discredited and brought below par by any doubt as to its final payment.

In this respect credit money and other forms of credit are alike; all sink to a discount when there is fear that the promise on their face will not be kept. But after depreciation has begun, the forces governing the value of credit money, if it is a legal tender, are quite different from those governing the value of other forms of depreciated credit. The demand for mortgage bonds, promissory notes, etc., comes from investors who are seeking interest on their capital. There is, as a rule, no such demand for credit money, for it does not commonly bear interest. Credit money is wanted by men not as an investment but as a medium of exchange. The value of a bond on which interest is in default reflects the judgment of investors with regard to the prospects of ultimate payment; the value of depreciated credit money, if it is legal tender and can be made to serve as money, is born of the general demand for it as a medium of exchange and basis of credit.

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[1] See Pierson, *Economics*, p. 416.

[2] The forces preserving credit money from depreciation are considered more fully in Chapter XVI.

When legal-tender credit money is depreciated it becomes the common medium of exchange and the standard of prices. Since it is worth less than the money it has represented, debtors evidently profit by its use. Bankers, who are the largest single class of debtors in any country, are obliged to accept it in payment of loans and so are forced to pay it out to depositors; hence depreciated credit money quickly gets into every channel of the circulation, effectually driving out the old standard and becoming itself a new standard of prices. All business is before long done in terms of the depreciated money. It becomes not only the standard of prices but also the basis of credit, for promissory notes, checks, drafts, etc., are canceled by its payment. As a result it becomes the object of the country's monetary demand and acquires a value of its own quite independent of its relation to the old standard. It becomes, in short, fiat money, its value being due to the monetary service it performs rather than to its promissory relation to the old money.

182. It must not be inferred from the foregoing analysis that confidence is not a factor in the value of depreciated credit money. A little reflection will show that the element of confidence must underlie all forms of fiat money. If people positively distrust the issuing government or bank, if there is no feeling of certainty with regard to the amount of such money already issued or to be issued, if there is fear of national bankruptcy or dissolution, men will withhold goods from sale or resort to barter rather than accept money which is liable to become worthless overnight. Under such circumstances depreciated credit money or any form of fiat money loses all its acceptability and ceases to be money. To the extent that there is doubt or fear about the future value of fiat money its acceptability is lessened, the demand for it to serve as money is reduced, and its value is lowered.

This point is not always clearly made in books on money. Because the initial depreciation of credit money is due to loss of confidence, further fluctuations in its value are commonly attributed to the same cause, the influence of the monetary demand being ignored. Some writers even take the view that the value of depreciated credit money hinges altogether on its prospects of redemption, varying with every shift of popular confidence. Increasing issues, according to this view, cause further depreciation, not because of a new relation between the demand for and supply of money but because the people have less faith that the money will be redeemed. This view is inadequate, for it takes into account only one of several circumstances which affect the value of such money.

183. Nor is it true, as is sometimes held, that men arrive at the value of depreciated credit money by consciously comparing it with the old standard. When selling goods men consider, as a rule, only two things, namely, the value of the goods and the value or purchasing power of the money offered. Their estimate of the money's purchasing power is not a product of conscious comparison with any single commodity; it is forced upon them, without conscious calculation on their part, by the prevailing prices of commodities in general. These show what the money is worth in goods, and that is all men want to know. If there is no doubt as to the immediate future of the depreciated credit money, the credit and stability of the issuing government or bank not being threatened, men soon get to regard it as possessing a value of its own, and unconsciously attribute changes of prices to changes in the values of things. When this condition prevails the depreciated credit money loses its credit characteristics and becomes pure fiat money, its value depending upon its supply in relation to the monetary demand.

During a transition from a metal to a fiat standard of depreciated credit money there is always a period of uncertainty, during which time commodities have two prices, one in metal and one in paper; but the use of two standards of prices is so inconvenient that this period is usually short. Experience has proved that people soon get so familiar with the value of the fiat money that they base all their calculations upon it, the abandoned metal becoming a commodity like other metals.

184. On account of the importance of this subject we shall now examine in considerable detail several illustrative examples of fiat money. Before entering upon this task it would be well for the reader to review the points thus far made in this chapter and get as clear an idea as possible of the nature of fiat money. He must notice that such money has real value and that it serves all the purposes of money. Its value is the product solely of the demand for money, and there can be no doubt about the reality of that demand. People do not easily grasp the nature of fiat money, for the average man's ideas about money are altogether derived from the use of gold and silver as commodity money, and here money and the metal seem to be the same thing. Fiat money will not be a puzzle to the student if he clearly understands the principles governing the use of gold as commodity money. As we have seen, even under a system of free coinage the coin and the bullion are not absolutely identical in value; sometimes the bullion is the more valuable, and then coins are melted down.[1] In all fundamental respects fiat money is exactly like commodity money; the only difference between the two is in the regulation of the supply, the one being automatic, the other artificial. The value of commodity money is linked to the value of its material; the value of fiat money is independent of the value of its material.

All the propositions with regard to the nature of money set forth in Chapter II apply to fiat money as well as to commodity money. It may serve as a standard of prices, as a so-called measure of value, as a store of value, and as a standard of deferred payments. It should not be inferred from this statement that it performs all these functions as satisfactorily as commodity money, — that is a subject still to be discussed, — but that it is real money, possessing real value and capable of doing all the work of money, there cannot be the slightest doubt.

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[1] The greater value of gold as bullion than as coin is shown either by rising prices of gold ornaments, etc., or by relatively lower prices of goods and securities in foreign countries.

## GREENBACKS AS FIAT MONEY

185. In the United States the greenback era, extending from 1862 to 1879, furnishes an interesting illustration of fiat money. During this period the standard money of the United States was the government's promise to pay, which was worth less than the coin in which it was nominally redeemable. In the summer of 1861, the money of the country then being gold, the Secretary of the Treasury negotiated with the banks of New York City a loan of $150,000,000. By December of that year Confederate successes on the field of battle and financial indecision or incapacity at Washington had so weakened northern credit that these bonds were practically unsalable. Depositors, alarmed by the outlook, withdrew so much gold from the New York banks that they were forced to suspend specie payments December 30, 1861. The stopping of specie payments in New York necessarily led to general suspension throughout the country, except in California, where the banks continued on a specie basis throughout the war. Bank notes at once became the only kind of cash easily obtainable.

It being clear that the government could no longer obtain gold from the banks, the paper-money advocates in Congress met with little opposition. On February 25, 1862, the first so-called legal-tender act was passed by Congress. It provided for the issue of $150,000,000 United States notes promising payment in coin to bearer, no date for payment being fixed. These notes were issued in denominations convenient for use as currency. In the following June another issue of the same amount was authorized, and on January 13, 1863, an issue of $100,000,000, making the total issue $400,000,000. In June, 1864, Congress authorized an additional issue of $50,000,000, but provided that this issue should be temporary, so that at the end of the war $400,000,000 of these notes were outstanding.

These United States notes, payable to bearer at an indeterminate date, and popularly called greenbacks because of their color, were legal tender for all payments, but from the first were worth less than their face value in gold coin, and soon became the standard money of the North. As the war progressed and successive issues were put forth they rapidly depreciated with respect to gold. Their depreciation was greatest in 1864, when $100 in greenbacks was worth only $40 in gold. There was of course a corresponding rise in the prices of goods. All business within the country was done upon a greenback basis, gold and silver having disappeared from circulation. After 1865, peace being restored, the greenback began to appreciate, but it did not reach parity with gold until just before January 1, 1879, when in accordance with a law passed in January, 1875, the government began the redemption in gold of all greenbacks presented.

### Prices and the Supply of Money

186. In comparing the course of prices during the greenback period with changes in the supply of money we must take into account four important facts: (1) the supply of money during part of this period included other legal-tender paper besides the greenback; (2) bank notes, fractional currency, etc., although part of the currency supply, were not part of the money supply; (3) depreciated credit money was issued by the Confederacy; (4) the demand for money was subject to great changes.

1. March 3, 1863, Congress authorized the issue of $400,000,000 legal-tender Treasury notes, which were to bear interest at not over 6 per cent. They were intended for use as a medium of exchange, but no denominations under $10 were permitted. The total issues under this law were as follows: $44,520,000 in one-year notes, $166,480,000 in two-year notes, and $266,595,000 in three-year compound-interest notes. All these notes, since they were legal tender, belong in the same category as the greenbacks and must be reckoned as part of the country's supply of money. They were not a convenient medium of exchange, for their interest feature gave them increasing value from day to day; but in the reserves of banks they were as serviceable as the greenback itself. As a basis of credit, therefore, these notes had almost the same effect upon prices as

would have been exerted by an equal quantity of greenbacks. There is no means of ascertaining what proportion of them was held by banks or how many were held as an investment by private persons; hence no exact estimate can be made of the quantity of fiat money in existence during this period. In 1864 the outstanding issues of these notes amounted to $178,000,000, and in 1865 to $242,000,000. Thereafter there was a steady decline in the amount outstanding until 1872, when all had been retired. Although we cannot be certain of the extent to which these notes performed the function of money, it would manifestly be an error not to treat them as part of the supply.

Another element of uncertainty, especially during the first three years of the period, relates to the use of gold. After 1861 coins of this metal ceased to circulate, the greenback being the cheaper money. Very little gold, however, was exported from the United States until 1865, and it is quite probable that between 1862 and 1865 many bankers, although they paid out no gold over their counters, based their credits to some extent on their holdings of this metal, for it was easily and quickly convertible into greenbacks. There is no reason for believing that this was the general practice among bankers, but that it prevailed to some extent cannot be doubted. Nevertheless after 1862 we cannot properly consider the stock of gold in the country as part of the money supply. In the vaults of banks it was regarded very much as government bonds are at the present time, that is, as an asset easily convertible into lawful money.

2. It is important to distinguish clearly between money and currency. The money supply, as has been seen, consisted of greenbacks and other forms of legal-tender paper. The currency included these and all kinds of non-legal-tender credit money, such as bank notes, subsidiary silver, and fractional currency. Until 1865 most of the country's credit money consisted of the notes of state banks, which were redeemable in greenbacks. After 1865 these were withdrawn from circulation on account of a prohibitory tax, the notes of national banks taking their place.

As bank notes were not legal tender they could not serve as a banking reserve and hence could not exert as much influence upon prices as the same quantity of greenbacks. As "hand-to-hand money" these bank notes were a substitute for greenbacks and so rendered more greenbacks available for use in banking reserves than would have been available had the notes not been issued. These notes, therefore, contributed to the maintenance of the level of prices. However, since they were themselves redeemable in greenbacks, their issue not only necessitated a reserve of greenbacks but was limited in volume by the difficulty of obtaining this necessary reserve. It is evidently wrong to treat the bank note as if it possessed the same potency as the greenback; it was only one of many forms of credit, all of which were contributing to the support of prices. We cannot consider bank notes part of the money supply, nor should we expect to find any correspondence between their quantity and the course of prices. The supply of bank notes always tends to increase when the need for currency increases. Generally speaking, therefore, we may infer from an increasing volume of bank notes not that a rise of prices will result but that a fall of prices has been prevented. While we may expect to find that the course of prices will in general be affected by changes in the supply of money, there is no reason to expect that it will correspond with changes in the supply of currency, or, as it is often called, the "total circulation" of the country.

3. In a study of the value of the greenback we must not ignore the fact that while the war lasted the people of the South had a money of their own. The Treasury notes of the Confederacy, although not a legal tender, were receivable for all public dues. They never possessed perfect acceptability as money, yet in some parts of the South they became the common medium of exchange. Throughout the war the South was practically without a recognized standard. The people used greenbacks to some extent, and sometimes their exchanges were effected by the use of gold. Strictly speaking, the $500,000,000 of paper money issued by the Confederacy constituted a part of the country's money supply during the Civil War.

We cannot, however, class the Confederate note with the greenback. It can be given recognition merely as one of the factors lessening the demand for greenbacks, for to some extent it satisfied the South's demand for money.[1]

4. The monetary needs of a country are not the same in war as in peace. When half the men of a country go out of its factories and business houses into military camps, prepared to destroy wealth instead of to create it, their wages cut to a pittance, it is evident that the production of wealth must decrease and that the volume of exchanges must decline. As a result there should be a lessened demand for money and a tendency of prices to rise if the supply of money is not reduced. If, however, the issue of a war is doubtful, and the people fear hostile invasion and the violation of business contracts, a contraction of credit is likely to result, business is brought more and more to a cash basis, and the demand for money, instead of being lessened by war, may be increased and prices fall. But if credit is not disturbed, a war which draws a large part of the male population away from trade and industry will work a decrease in the demand for money and a corresponding rise of prices. The common notion that war increases the demand for money grows out of the confusion of money with capital. Governments borrow immense sums during a war and the rate of interest usually rises in consequence; but, as was pointed out in Chapter VII, the demand for capital is not a demand for money.

### Question of Demand and Supply

187. The demand for the greenback as money in 1862 must certainly have been much less than had been the demand for gold in preceding years, for the country had been split in two, so that the monetary demand brought to bear upon the greenback came, for the most part, from only one section. There is no evidence that the people of the North lost confidence in

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[1] The greenback never became the money of the South. From 1865 to 1879, while the North was on a greenback, fiat-money basis, in many sections of the South business was conducted upon a specie basis.

their banks or that the use of credit instruments was to any large extent curtailed. Inasmuch as the need for money was reduced by the withdrawal of several hundred thousand men from gainful occupations, it seems reasonable to say that the war caused in the North a lessening of the demand for money. Even, therefore, if the money supply of the North had not been increased, prices would naturally have been higher.

In 1865 the armies of the North and the South were disbanded. There were two reasons why the demand for money should then increase. (*a*) Several hundred thousand men returned to the paths of industry and business, greatly increasing the volume of exchanges. (*b*) In so far as the people of the South made use of the greenback, a new and additional demand for it arose, and this demand tended to increase as time passed and the prejudice against the greenback wore away. We should naturally expect, therefore, on account of this enlarged monetary demand, that the close of the war would be followed by a rise in the value of greenbacks and by a fall of prices.

188. We cannot get exact data with regard either to the supply of money or to the forces governing the demand. The data presented in the following tables are estimates and can be only approximately correct. The reader must beware of thinking that positive conclusions can be drawn from a study of the statistics and charts which follow. They suggest inferences and explanations when viewed in the light of sound theory, and it is for that reason they are presented.

The table on page 278 shows the constituent elements of the supply of money and currency from 1860 to 1879. During 1860 and 1861 the money supply consisted entirely of gold; thereafter of greenbacks and other legal-tender paper.[1] The supply of greenbacks increased steadily until 1865, then declined until 1873, after which date there was little change. The supply of currency also increased in the same proportion until 1865, and then declined somewhat but not in the same proportion as the supply of money; for after 1865 there was a gradual increase in the quantity of bank notes and other credit money.

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[1] This "other legal-tender paper" included the one- and two-year notes of March 3, 1863, the compound-interest notes of June 30, 1864, and the 3 per cent certificates of March 2, 1867. The government issued other forms of certificates which doubtless did some service as money, for public creditors were obliged to accept them. The figures for the amount of gold in the country (column I) are taken from Muhleman's *Monetary Systems of the World*, pp. 60–61, except that the estimate of $100,000,000 in gold in use as money in 1862 is my own. After 1862 gold is left out of account; the Pacific coast states, where its use was continued, were from the monetary point of view a foreign country.

STATISTICS OF GREENBACK PERIOD

(In Millions of Dollars)

| | I Gold | II Green-backs | III Other Legal Tender | IV Total Money | V Bank Notes | VI Other Credit Money | VII Total Credit Money | VIII Total Currency |
|---|---|---|---|---|---|---|---|---|
| 1860 | 235 | | | 235 | 207 | | 207 | 442 |
| 1861 | 250 | | | 250 | 202 | | 202 | 452 |
| 1862 | 100 | 150 | | 250 | 184 | | 184 | 434 |
| 1863 | | 391 | | 391 | 239 | 20 | 259 | 650 |
| 1864 | | 447 | 178 | 625 | 210 | 23 | 233 | 858 |
| 1865 | | 431 | 242 | 673 | 289 | 25 | 314 | 987 |
| 1866 | | 401 | 180 | 581 | 301 | 27 | 328 | 909 |
| 1867 | | 372 | 135 | 507 | 303 | 28 | 331 | 838 |
| 1868 | | 356 | 105 | 461 | 303 | 33 | 336 | 797 |
| 1869 | | 356 | 55 | 411 | 303 | 32 | 335 | 746 |
| 1870 | | 356 | 48 | 404 | 302 | 40 | 342 | 746 |
| 1871 | | 356 | 32 | 388 | 320 | 41 | 361 | 749 |
| 1872 | | 356 | 12 | 368 | 340 | 41 | 381 | 749 |
| 1873 | | 356 | | 356 | 347 | 47 | 391 | 750 |
| 1874 | | 382 | | 382 | 352 | 50 | 402 | 784 |
| 1875 | | 376 | | 376 | 354 | 56 | 410 | 786 |
| 1876 | | 370 | | 370 | 333 | 61 | 391 | 764 |
| 1877 | | 360 | | 360 | 317 | 67 | 384 | 744 |
| 1878 | | 347 | | 347 | 323 | 88 | 411 | 758 |
| 1879 | | 347 | | 347 | 329 | 117 | 446 | 793 |

The figures in this table include cash in the United States Treasury. The amount of this was not large and did not greatly vary, so that the general result would not be much affected even if it were deducted from the totals. But it should not be deducted; the United States Treasury is one of the largest business organizations in the country, and its need for a cash balance is legitimately a part of the country's monetary demand.

VALUE OF THE GREENBACK

| | Falkner Index Number (Greenback Prices after 1861) | Greenback Price of Gold Dollar | Gold Price of Greenback Dollar |
|---|---|---|---|
| 1860 | 100.0 | | |
| 1861 | 100.6 | | |
| 1862 | 117.8 | 113.3 | 88.3 |
| 1863 | 148.6 | 142.2 | 68.9 |
| 1864 | 190.5 | 203.3 | 49.2 |
| 1865 | 216.8 | 157.3 | 63.6 |
| 1866 | 191.0 | 140.9 | 71.0 |
| 1867 | 172.2 | 138.2 | 72.4 |
| 1868 | 160.5 | 139.7 | 71.6 |
| 1869 | 153.5 | 133.0 | 75.2 |
| 1870 | 142.3 | 114.9 | 87.0 |
| 1871 | 136.0 | 111.7 | 89.5 |
| 1872 | 138.8 | 112.4 | 89.0 |
| 1873 | 137.5 | 113.8 | 87.9 |
| 1874 | 133.0 | 111.2 | 89.9 |
| 1875 | 127.6 | 114.9 | 87.0 |
| 1876 | 118.2 | 111.5 | 89.8 |
| 1877 | 110.9 | 104.3 | 95.4 |
| 1878 | 101.3 | 100.8 | 99.2 |
| 1879 | 96.6 | 100.0 | 100.0 |

The above table, covering the same period, gives the Falkner index number, the greenback price of a gold dollar, and the gold price of the greenback dollar. The Falkner index number, although imperfect in some respects, undoubtedly corresponds in a general way with the actual course of prices. For this period it is the only index number available. The price of gold is the average for each year.

Chart III, on page 281, enables the reader at a glance to compare the general movement of prices with changes in the supply of money and currency. The heavy black line shows changes in the supply of money. (From 1863 to 1872 this included various forms of legal-tender paper. Changes in the volume of greenbacks alone during this period are indicated by a crossed line.) The linked line shows changes in the volume of currency, including all forms of money and credit money. The dotted line shows the rise and fall of commodity prices in greenbacks.

The chart shows a surprising tendency on the part of the commodity price line to parallel that of the money supply. In the four years following July, 1861, the money supply increased from $250,000,000 to $673,000,000, a gain of over 170 per cent; in the same period prices rose from 100 to 217. After 1865 the money supply decreased and prices fell. The lines keep together until 1874, after which date the price line declines, although the supply of money remains stationary.

## Analysis of Price Changes

It is worth while to examine these movements in some detail. For convenience we will divide the epoch into three periods: (*a*) the War Period, 1861 to 1865; (*b*) the Fiat Period, 1865 to 1875; (*c*) the Resumption Period, 1875 to 1879. The first and third were essentially periods of transition from one standard to another.

189. (*a*) In 1860 the country was upon a gold basis, and according to official estimates was using as money about $250,000,000 in gold. Free coinage of silver was permitted, but only subsidiary silver was in use, silver dollars having a higher value as bullion than as coin. The transition year of 1862 was one of monetary chaos. Not until toward the end of the year had the people become accustomed to the greenback. The people of the South were beginning to use their own paper money. What the real supply of money was throughout 1862 it is impossible to determine. We know only that the volume of

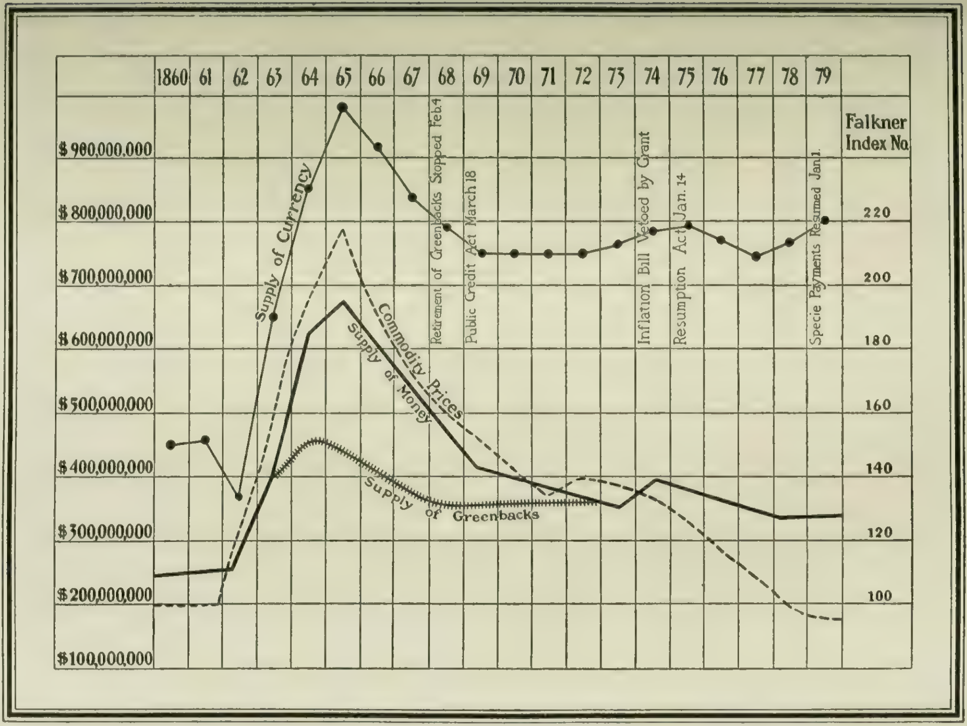
1860
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
Falkner Index No.
$900,000,000
$800,000,000
$700,000,000
$600,000,000
$500,000,000
$400,000,000
$300,000,000
$200,000,000
$100,000,000
220
200
180
160
140
120
100
Supply of Currency
Commodity Prices
Supply of Money
Supply of Greenbacks
Retirement of Greenbacks Stopped Feb. 4
Public Credit Act March 18
Inflation Bill Vetoed by Grant
Resumption Act Jan. 14
Specie Payments Resumed Jan. 1

CHART III

greenbacks was greatly increased in that year and that the greenback prices of commodities immediately began to rise. The rapid decline in the value of the greenback between 1862 and 1865 can properly be attributed to three causes: (1) their increasing quantity; (2) the lessening demand for money on account of the war and on account of the fact that the South had a money of its own; (3) the fluctuating acceptability of the greenback, its future being uncertain as long as the war was undecided.

190. (*b*) During the second period (1865–1875) the greenback had practically lost its credit characteristics and become pure fiat money. While no one knew when it would be redeemed, there was no longer any general doubt about its future. A large proportion of the people liked the greenback so well that they opposed its retirement. A strong political faction demanded that it be made the permanent money of the country, and had sufficient influence in 1868 to obtain the passage of an act of Congress suspending its further retirement and cancellation. The effect of this act upon national credit was so bad that a year later Congress passed what is known as the Public Credit Act, in which the pledge was made that the obligations of the government would ultimately be redeemed in coin. Neither of these acts had any noticeable effect upon the appreciating tendency of the greenback as revealed by the prices of commodities. In the four years after 1865 both the price level and the money supply declined almost as much as they had risen in the preceding four years.

This appreciation of the greenback, or fall of prices, was to be expected; not only was the money supply decreasing but the demand for money was increasing enormously, for all the people of the country were now engaged in gainful occupations. Except on the Pacific coast and in parts of the South all buying and selling was done upon a greenback basis, and except in import and export circles all price lists were in greenbacks. To the average business man the greenbacks possessed a value of their own. When pricing his goods he no longer thought of their value in gold; knowing what they had cost him in greenbacks and what were the prices of other goods, he knew the real value or purchasing power of the greenback and priced his goods accordingly. Only to the importer and exporter was the gold value of the paper money of prime importance, for the one was necessarily a buyer and the other a seller of gold exchange.

The reduction of the money supply during this period was mainly due to the retirement of the legal-tender compound-interest notes. To what extent these had been used as money is not known. In the construction of the chart it is assumed that all of these notes performed a money function. In so far as this is beyond the facts the chart exaggerates changes in the money supply between 1863 and 1872.

191. (*c*) The third period begins with the act of Congress, January 14, 1875, which ordered that the Secretary of the Treasury should take the necessary steps for the resumption of specie payments January 1, 1879. This Resumption Act authorized an issue of bonds to any amount necessary to accomplish the purpose, and provided that the volume of greenbacks, then $382,000,000, should be reduced to $300,000,000. Three years later (May, 1878) Congress stopped the further retirement of greenbacks; their volume was then $346,681,016, and it has not since been changed.

Thus it happened that during the Resumption Period the supply of money varied but little. Commodity prices, however, continued to decline. There was every reason why they should decline. In the first place, the acceptability of the greenback as money was firmly established. No man with anything to sell had the slightest doubt about the greenback's future purchasing power. Indeed, such doubt had practically disappeared long before the Resumption Act was passed. In the second place, depression ruled in the business world, the panic of 1873 having given a severe shock to both capital and credit. Between 1874 and 1878 the total deposits of national banks made no increase, and the clearings of the New York banks declined from $33,000,000,000 in 1872 to $23,000,000,000 in 1878. This contraction of credit necessarily meant a lessened monetary demand for goods and consequently a fall of prices. A similar phenomenon was observed after the panic of 1893. Furthermore, during the ten years prior to 1879 there had been a normal growth of population, the railroad builder had opened up large sections of new territory, and numerous new industries had been established. In spite of these developments, all of which increased the demand for money, the supply of money in 1879 was less than in 1869. That prices should be lower was natural and inevitable.

During the Resumption Period the greenback gradually lost its fiat-money characteristics. The practical certainty of its redemption in gold gave it almost perfect acceptability as money and made its value relation to gold of considerable importance as a factor in determining its value relation to goods. This factor, however, was not all important; it merely prevented the depreciation of the greenback below a certain point. So long as men believed that the greenback would be redeemed in 1879 they would naturally refuse to exchange it for goods at prices very much above the level of gold prices.

192. A comparison of the course of prices with the supply of currency would, as already explained, possess little or no significance. However, even if the "total circulation" were an important factor in the determination of prices, the variations in its volume during the greenback era would lead to no conclusions antagonistic to those we have already reached, for those variations correspond very closely with contemporary variations in the money supply. The total currency in the country in 1878 was no greater than in 1869, although the population had increased 30 per cent. There cannot be any doubt that the demand for money and currency was greater in 1878 than in 1869, or that the supply of currency and money in 1878 was not sufficient to consummate the increased volume of exchanges at the old high level of prices. The amount of "hand-to-hand money" that a country will absorb depends very much on the prosperity of the people, being undoubtedly larger in good times than in dull. Additional issues of credit money satisfy an increasing demand for cash but not for money.

## Greenbacks and the Price of Gold

193. In view of the fact that many writers have either tacitly or expressly indorsed the opinion that the purchasing power of the greenback, or value in goods, was determined by its gold price, a brief analysis of this matter is worth while. When the greenbacks were first issued in 1862, gold payments having then been suspended, a gold dollar was worth more than a dollar in greenbacks. Gold became a commodity like other metals, and its greenback price was regularly quoted in New York City. As the greenback depreciated, the price of gold rose, as did the prices of other commodities. After 1865, when the greenback was appreciating, the price of gold followed the general tendency of prices. Did the greenback appreciate after 1865 because the price of gold was falling, or did the price of gold fall because the greenback was appreciating? These questions bring out the point at issue.

Chart IV, on page 286, will enable the reader to compare the movements of general prices with changes in the greenback price of gold. The dotted line represents commodity prices in greenbacks; the black line, the price of gold in greenbacks; the chained line, the supply of money. For the years 1862 to 1865 these lines represent quarterly averages.[1] After 1865 the lines indicate only the annual average prices of both gold and commodities. The reader will notice that there is a general correspondence throughout the chart between the gold line and the commodity line. The price of gold reached its maximum in 1864 and commodity prices touched their highest point in 1865. Both lines fall sharply during 1865, but the fall in the price of gold is much greater than in the prices of commodities. After 1865 the gold line remains considerably lower than the commodity line until 1878.

194. In considering the relation between gold and commodity prices during this period we must first note that the prices of all imported commodities must have closely followed

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[1] The index number for "Greenback Prices of Commodities" is taken from the *Report of the Indianapolis Monetary Commission*, p. 463.

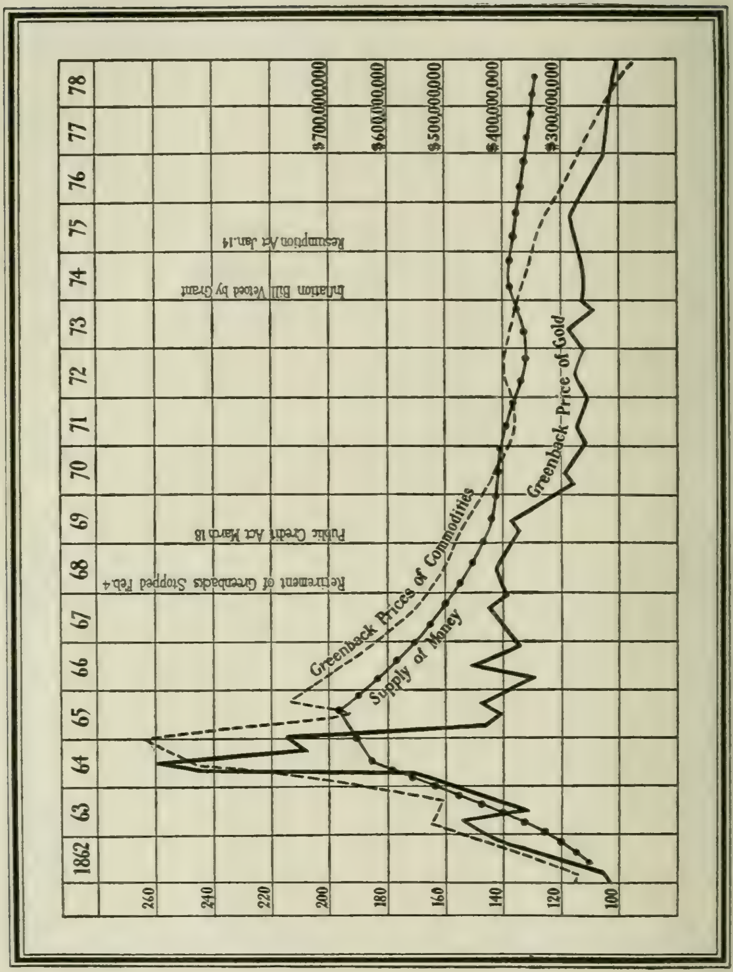
1862
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
260
240
220
200
180
160
140
120
100
$700,000,000
$600,000,000
$500,000,000
$400,000,000
$300,000,000
Resumption Act Jan. 14
Inflation Bill Vetoed by Grant
Public Credit Act March 18
Retirement of Greenbacks Stopped Feb. 4
Greenback Prices of Commodities
Supply of Money
Greenback-Price of Gold

CHART IV

the fluctuations in the price of gold. Purchasers paid for them with gold, and were compelled, therefore, when selling their goods for greenbacks, to take into account the value of gold in greenbacks. The prices of all imported goods therefore rose and fell with gold. So also the greenback prices of leading articles of export must have been affected by changes in the gold value of the greenback. Exporters to countries upon a gold basis received gold (or gold exchange) in payment, and this they sold for greenbacks; hence a rise in the greenback price of gold, since it increased the greenback profits of exporters, stimulated the export demand for certain articles and caused their prices also to rise.

But the fact that the prices of leading articles of import and export must have been influenced by fluctuations in the greenback price of gold by no means proves that the value or purchasing power of the greenback hinged upon its value relation to gold. It could as easily be proved that the value of the greenback depended on its value relation to silver, for the prices of all articles exported to or imported from countries upon a silver basis must have reflected changes in the greenback price of silver, a fall in that price stimulating imports until the prices of the imported articles had fallen correspondingly, while a rise in that price would necessarily have stimulated the export demand for such of our goods as were wanted in countries on a silver basis.

Since the bulk of our foreign trade was with Europe, which was upon a gold basis, the greenback prices of many commodities tended to follow pretty closely variations in the greenback price of gold. If our largest trade had been with Mexico, India, and the Orient, our prices would have been influenced rather by the greenback value of silver.[1]

195. In the second place, it should be noted that the greenback price of gold was in the main the product of expert

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[1] The influence of world forces upon the prices of certain articles is tersely expressed by Mr. Roberts, Director of the Mint: "Goods in every country are attached to the world's standard whether the money is or not" (*Report for 1898*, p. 168).

estimates as to the future value of the greenback. Gold was a subject of speculation. It was bought and sold like corn, wheat, and cotton. Its greenback price reflected the judgment of experts as to the future value of greenbacks. A buyer of gold was a seller of greenbacks, and a seller of gold a buyer of greenbacks. Any condition that promised an increase in the value of the greenback caused a fall in the price of gold; any circumstance that threw doubt upon the greenback caused a rise in the price of gold. For example, between 1866 and 1869 the greenback price of gold did not decline,[1] yet the value of the greenback with respect to commodities in general rapidly advanced during this period. In these years the expert judgment of the country was in doubt about the future of the greenback; hence its value with respect to gold did not advance. A strong political faction was opposed to its retirement, and there was a possibility that the supply might be indefinitely increased. Early in 1869 Congress passed the Public Credit Act pledging the ultimate redemption of the greenback in coin. This act had no effect upon commodity prices, i.e. upon the value of the greenback, but did cause an immediate fall in the price of gold. These facts indicate that fluctuations in the price of gold, instead of being the cause of changes in the prices of commodities, were rather the effect of such changes.

In the same way prices in Wall Street reflect the expert judgment of the country in regard to industrial prospects. Railroad earnings do not decline because stocks fall; on the contrary, stocks fall because a decline of railroad earnings is anticipated. When conditions warrant the expectation of larger dividends the stock market is buoyant; when an opposite state of affairs prevails it is depressed. The speculation in gold was in every way analogous to speculation in stocks. The greenback was the real subject of speculation, and its value as revealed by general prices was determined by the demand for it as money. After 1865 it steadily appreciated because this money demand increased with the growth of the country. During the five years following the close of the war there was considerable uncertainty about its future status; a strong sentiment developed in favor of its permanent retention as the money of the country; Congress stopped its retirement in 1868, but in 1869 declared that it must some day be redeemed. All these uncertainties were recorded with great sensitiveness by the fluctuations in the greenback price of gold. They seem, however, to have had no effect whatever upon prices in general. The Public Credit Act of 1869 evidently convinced expert judgment that the greenback was destined to appreciate. On no other hypothesis can the fact be explained that the price of gold during the next ten years was constantly far below the average of general prices.

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[1] The average price of gold in April, 1866, was 127; in May, 1869, it was 139.

196. Finally, it is impossible to explain the greenback price of gold on the hypothesis that it represented an investment demand for the greenbacks. After the Public Credit Act of 1869 the price of gold fell to 115. This meant that in the opinion of experts a dollar in greenbacks was worth about 90 cents in gold. There was certainly no reason for believing that the greenback would be redeemed in gold within two years; yet an investment demand strong enough to make it worth 90 cents in gold could not have existed without a confident belief that it would be redeemed within that period. In the seventies 5 per cent was the rate of interest which satisfied investors in bonds. Hence, as the result of an investment demand born of confidence in its redemption, the greenback dollar on January 1, 1877, — even though there prevailed absolute confidence in the success of resumption two years later, — should not have been worth over 90 cents in gold; yet $100 in greenbacks was then worth $94.40 in gold. In January, 1875, the present worth of $100 in greenbacks as an investment was only $80 in gold, yet their actual gold value was $89.

The greenback was much more than a mere government bond bearing no interest and maturing in 1879. It was legal tender for the payment of all debts and was in universal demand for that purpose. For five years before 1875, when the date of resumption was uncertain, the gold price of the greenback ranged from 87 to 90. It is impossible to account for this high valuation on the supposition that it was due to an investment demand or to increased confidence in the ultimate redemption of the greenback as a government obligation. The greenback's value was due not to an investment demand but to the service which it performed as money. The definite promise of redemption in 1875 merely increased its acceptability and marked a minimum below which its value could not fall.

## LITERATURE

The subject of fiat money has not received the independent scientific treatment that it deserves. The reader will find some discussion of the subject in the following: F. A. WALKER, *Money;* J. S. MILL, *Political Economy*, Book III, chaps. vii, viii, and xiii; N. G. PIERSON, *Economics, passim;* J. A. NICHOLSON, *A Treatise on Money;* WHITE, *Money and Banking*, Book II.

The use of fiat money is advocated in the following: A. J. FONDA, *Honest Money* (New York, 1895); B. A. HILL, *Absolute Money* (St. Louis, 1875); A. DEL MAR, *The Science of Money.*

An excellent brief story of greenback issues is given in WHITE'S *Money and Banking*, Book II, chap. iii. Other books treating of greenbacks: W. C. MITCHELL, *A History of the Greenbacks* (Chicago, 1903); J. J. KNOX, *United States Notes* (New York, 1892); A. B. HEPBURN, *History of Coinage and Currency in the United States* (New York, 1915).

# CHAPTER XIV

## FIAT MONEY IN FOREIGN COUNTRIES

197. England's experience with depreciated bank notes from 1797 to 1821 illustrates the use of fiat money. 198. Austria's experience with fiat money from 1848 until 1900. 199. History of the credit ruble in Russia. 200. Russia's transition from a fiat to the gold standard. 201. British India's involuntary experience with fiat money from 1893 to 1899. 202. The erroneous view that gold became the standard of India as soon as the free coinage of silver was suspended in 1893. 203. A comparison of changes in the value of the rupee after 1893 with changes in gold and silver. 204. For two or three years India was practically upon a joint standard, the fiat rupee and the commodity gold being both legal tender. 205. Brief reference to other fiat systems. 206. The advantages claimed for fiat money: (1) Economy; (2) Stability of value; (3) No "cornering" possible. 207. Three objections to so-called ideal money: (1) Doubt as to its practicability; (2) Danger of inflation; (3) Its fluctuating relation to other standards. 208. The agitation for paper money in the United States has not been based on scientific principles. 209. The evils of paper money based on property illustrated by the French assignat. 210. In no country could pure fiat money have a firmer basis than the caprice of a single generation.

197. England's experience with depreciated bank notes a century ago will be found on analysis to confirm the conclusions reached in the last chapter. In 1797, when England and her allies were at war with Napoleon, there was fear lest the country might lose all its gold. To prevent this an unwise act of Parliament forbade the Bank of England to redeem its notes. This so-called Restriction Act remained in force until 1821, when specie payment, or redemption of bank notes in gold, was resumed.

During this period the inconvertible notes of the Bank of England were the standard of prices. Although nominally credit money, they were in reality fiat money. For a few years they maintained their face value in gold, but excessive issues soon brought them to a discount. In 1810 the premium on gold was about 16 per cent. The steady rise of prices had stimulated imports and so brought about the export of all the gold in the country.[1]

In 1810 a parliamentary commission, of which the economist Ricardo was a member, put forth the famous "Bullion Report," in which the currency disorders were clearly analyzed and the resumption of specie payments was strongly recommended. As this Bullion Report pointed out, the depreciation of the bank notes was due to their excessive quantity, not to a scarcity of gold nor to any distrust of the bank note. Indeed, as money the English people apparently liked the notes better than gold. Nobody ever questioned their value or their prospects, for there was never any doubt about the intention of Parliament to compel ultimate redemption or about the ability of the Bank to redeem. Confidence in the bank note was practically complete and unchanging, yet its gold value was a matter of daily fluctuation. The notes of the Bank of England were fiat money, and their value with respect to goods depended not on the prospects of redemption but on the relation between their supply and the need for money in England.[2]

## Fiat Money in Austria

198. Austria has had a long and unhappy experience with fiat paper money. During the Hungarian revolution of 1848, when the monetary unit was the florin (or gulden) of 171.449 grains of pure silver, the state bank suspended the redemption of its notes. From that time until the end of the century the only money of the country consisted of the state bank notes and imperial treasury notes, both legal tender and only nominally redeemable in coin. One attempt to resume specie payments in 1859 was blocked by war with Italy, and another

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[1] When depreciated credit money is issued to excess the prices of commodities in general rise before the price of gold, for the latter is not affected until the decrease of exports has created an international balance to be settled with gold. This natural order may be reversed, of course, whenever a speculative demand for gold is added to that of importers.

[2] The value of the notes was indicated by the prices of goods; their value in gold, by the premium on gold. The latter, but not the former, was influenced by England's fortune in war.

in 1866 by war with Prussia. Until 1870 both gold and silver were at a premium of from 12 to 25 per cent. After 1870, when the gold value of silver began to fall, the value of Austrian paper money with respect to silver steadily rose until in 1878 it reached parity with silver. As the law permitted the free coinage of silver, new coins at once came into circulation; but in 1879 the free or private coinage of silver was stopped, the silver coins being thereby made fiat money. It was generally understood at the time that the government would some day adopt the gold standard, but it was not known what weight of gold would be adopted as the monetary unit or in what value of gold the paper florin would ultimately be redeemed. Owing to measures strictly limiting the issues the value of the paper currency steadily rose after 1878 until it became worth more than the silver bullion in the coins by which it could be legally redeemed. After 1879 Austria was without even any pretense to a metal standard. Its money consisted of inconvertible paper and fiat silver guldens, the latter being worth more than the silver they contained. The general expectation that the paper money would some day be redeemed in a gold coin worth more than 171.449 grains of silver undoubtedly had something to do with the increase in the value of the paper money, for its acceptability as a medium of exchange was thereby increased; but that this was an important factor in determining its value cannot be maintained, for no man knew in what weight of gold the bank note would be finally redeemed. The Austrian paper and silver money during this period was fiat money, and its value was the result of Austria's monetary demand.

In 1892 a law was passed providing for the adoption at an early date of the gold standard and naming as the monetary unit the crown[1] (krone), a coin containing 4.705 grains pure gold (.304878 grams). A silver or paper florin was rated as equal to two gold crowns, although at the time the paper florin was worth 6 per cent less than this amount of gold. Theoretically the adoption of this new monetary unit involved a debasement of the standard equal to about 15 per cent. At the ratio of 15.5 to 1, which prevailed when the paper money became inconvertible, the silver florin (171.449 grains pure silver) was worth 11.06 grains of gold, whereas two crowns contain only 9.51 grains. This debasement with reference to gold was evidenced in 1892 by the different rates of premium commanded by the old gold florins and the new gold crowns, the florins being at 25 per cent premium in paper money, the crowns at 6 per cent. The old eight-florin gold piece exactly equaled a French napoleon (21 francs), whereas 20 of the new gold crowns equaled only 21 francs.[1] A comparison with American money shows the same differences; the old silver florin in 1848 equaled about 47 cents, but the florin of to-day (two crowns) is worth only 40.6 cents.

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[1] One kilogram of pure gold is coined into 3280 crowns. The crown is divided into 100 heller. The old florin or gulden contained 100 kreutzer. The halving of the monetary unit in 1894 was done in deference to the popular notion that a small unit works advantageously to the poor.

The real standard of Austria, however, was not debased by the law of 1894; on the contrary, it was raised 6 per cent. The real standard was the paper florin, which had a value of its own independent of either silver or gold. The law, having named a new unit of gold, properly gave the paper florin such a rating with respect to the new crown that the transition could be effected without disturbance of the price level or injustice to either debtor or creditor. There was no scaling of obligations, for the paper florin was converted into gold at a ratio close to its average gold value during the preceding ten years.

During the ten years following 1892 the Austro-Hungarian Bank, aided by the government, accumulated some $200,000,000 in gold, and the premium on that metal gradually fell to a fraction of 1 per cent. At the present time (1905) the country is practically upon a gold basis, although the state bank is not under compulsion to redeem its notes in gold.[2]

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[1] It was ordained in the law that 100 of the new crowns should be equal to 42 of the old gold florins and to 50 paper florins, a difference of 16 per cent.

[2] In November, 1903, the Austro-Hungarian Bank held $226,000,000 in gold and $59,000,000 in silver. Its note circulation amounted to $350,000,000. See *Monthly Summary of Commerce and Finance*, November, 1903, p. 1636.

## THE CREDIT RUBLE IN RUSSIA

199. By 1905 Russia had extricated its finances from the chaos of a century's experience with fluctuating fiat money. Paper credit money was first used in Russia in 1768, at which time the unit or standard was the silver ruble (divided into 100 kopecks), which was exactly equivalent to four francs. Excessive issues of paper rubles in 1786 caused their depreciation, and from that date until 1897, a few years excepted, the monetary unit of Russia, despite several efforts to return to a metal standard, was a piece of government paper discredited and unredeemed. The volume of paper rubles, which were known as "assignats," rose in 1817 to 800,000,000 ($600,000,000), and paper with respect to silver was at a discount of 75 per cent.

In 1839, by a compulsory conversion into new paper money called "bills of credit," at the rate of three and one half of the old paper for one of the new, the volume of paper money was reduced and a metal standard was almost achieved.[1] The Crimean War led to increased issues and rapid depreciation. Between 1845 and 1857 the volume of paper increased from 170,000,000 to 735,000,000 rubles. An unsuccessful effort at redemption in 1863, when the paper ruble advanced nearly to par in silver, was followed by another era of inflation and depreciation, until in 1877 the paper was at a discount of 41 per cent with respect to gold, French exchange being quoted at 234 francs for 100 rubles, par being 400. Fresh issues on account of the war with Turkey had raised the total to over 1,000,000,000 rubles. The amount was reduced about 150,000,000 rubles during the next ten years.[2]

During all this period the legal monetary unit was the silver ruble, but after 1873, when the gold price of silver began to fall, a sentiment gradually formed in Russia in favor of the gold standard. In 1876 customs duties were made payable in gold, and a few years later Russia's foreign loans were drawn in terms of gold. Nevertheless, that there was no definite purpose to adopt the gold standard was shown by a decree in 1885 declaring the legal unit to be the silver ruble of 17.996 grams of pure silver, and permitting the coinage of gold at a ratio of 1 to 15.4958.

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[1] The new bills of credit, or "credit rubles," as they are commonly called, appear to have been at par with silver most of the time between 1840 and 1854.

[2] Following is a translation of the words on one side of the paper ruble: "Imperial Credit Note. On presentation there will be paid at the Exchange Cash room of the Imperial Bank one ruble (or more) in silver or gold." The other side contained a statement that the notes were guaranteed by the whole property of the realm; also this legal-tender manifesto: "These credit notes enjoy the right of circulation throughout the empire on an equality with silver coin."

200. After 1887, owing to reduction in the quantity of credit rubles and to improving industrial conditions, the value of the ruble steadily rose until 1890, when it was worth 72 kopecks in gold (par being 100). Then it weakened and its average gold value in 1892 was only 63 kopecks. It rose to 65 in 1893 and to 67 in 1894. Meantime two significant events had happened. In 1893 the decline in the value of silver, caused by the closing of the Indian mints and the repeal of the Sherman Act in the United States, suddenly made the credit ruble worth more than the quantity of silver which it legally represented. The Russian government, not desiring the silver standard, promptly closed its mints to the coinage of silver rubles in July, 1893. The paper ruble, which was worth 97 kopecks in silver in 1892, rose to 105 in 1893 and 145 in 1894. The second important event was the adoption by the government of a policy intended to prevent wide fluctuations in the gold price of the ruble, which had risen from 63 in 1892 to 67 in 1894. The government, having accumulated a hoard of gold amounting in 1894 to $450,000,000, entered the markets as a seller of foreign exchange, that is, of gold. In this manner for three years it prevented the gold value of the ruble from rising above 67, thus holding the ruble to a fixed relation with gold. This policy, which was a practical maintenance of the gold standard, was given formal recognition by law in 1897, the paper ruble being made convertible into gold at the rate of 66⅔ kopecks per ruble.

In order that the transition from a fiat to the gold standard might cause no disturbance of prices, the law named as the new monetary unit a gold ruble containing one third less gold than the old. Since the paper ruble had for three years been kept equal in value to between 66 and 67 kopecks gold, it was evidently at par with the new ruble. Gold rubles of the old coinage, of which some were in existence, were made exchangeable for one and a half of the new.[1] This was about the average value which the credit ruble had maintained in gold during a period of twenty-five years.

The paper ruble was pure fiat money from 1857 until 1893. Legally and nominally it was linked with silver, but actually its value was dependent upon the monetary demand and supply. After 1887 the growing belief that it would some day be redeemed in gold increased its acceptability as money and tended to raise its value; but this could not have been a decisive factor, for redemption had not been promised nor had the probable ratio of exchange between the paper and gold ruble been even discussed. Even in 1895, when the drawing of contracts payable in gold was authorized, it was officially announced that this step "did not furnish any ground upon which to predict the adoption of a gold standard, or commit the state to any particular method of redeeming the bills now outstanding."

The establishment of the gold standard was made possible by the large holding of gold accumulated by the Bank of Russia, a government institution. The stock of gold in Russia, according to estimates of the United States Director of the Mint, increased from $455,000,000 in 1894 to $756,000,000 in 1897, when the new monetary system was legally adopted. Silver was then coined only on government account and was credit money like the silver coins of the United States. Imperial credit notes (the old credit ruble) had been retired, the notes of the Imperial Bank having taken their place.

## FIAT MONEY MADE OF SILVER

201. At the end of the nineteenth century India had a novel though brief experience with fiat money. From 1835 till 1893 the monetary unit was the rupee of 165 grains of pure silver.

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[1] The old gold ruble was equal to 77 cents of our money; the new ruble was equal to 51 cents.

As free coinage was permitted, the value of the rupee never differed widely from that of 165 grains of silver bullion. Hence prices in India reflected variations in the value of silver.

The fall in the gold value of silver after 1873, although not caused by any great decline in its real value, and so not attended by a great rise of Indian prices, was a source of positive loss to the people of India and of considerable embarrassment to the government. For the development of its resources India had borrowed capital in England by the sale of gold bonds, the interest on which amounted to about £16,000,000 or $80,000,000 gold. This interest fund was raised by taxation, the rupees thus obtained being converted by the government into gold or sterling exchange. As the gold price of silver fell in Europe the silver price of gold rose correspondingly in India, so that £16,000,000 in gold represented increasing sums of Indian money. As a result the annual remittance to England absorbed a larger and larger proportion of India's revenues. It increased from 170,000,000 rupees in 1873 to 270,000,000 rupees in 1892. To the people of India gold seemed to be a commodity of rising value, and their view was nearer the truth than that of the average Englishman or American, to whom silver seemed to be a depreciating metal.

The depreciation of the rupee as measured in gold, besides proving a burden to the Indian government, seriously interfered with India's trade and investment relations with England. It also caused much complaint from the English civil officers in India, whose salaries, paid in rupees, were exchangeable for diminishing sums in pounds sterling.

In order to check the decline in Indian exchange, that is, in the gold value of the rupee, the government on June 26, 1893, foreseeing the probable repeal of the Sherman Act in the United States and its depressing effect on the value of silver, ordered that the mints of India be closed to the further coinage of rupees. At the same time notice was given that the government would give rupees in exchange for sovereigns at the rate of 15 rupees for a sovereign (1 rupee for 16 pence), and that public dues might be paid in sovereigns at this rate.

As the rupee at this time was worth only about 14 pence in gold, it was evident that no sovereigns would be offered to the government for exchange into rupees at 16 pence per rupee. It was hoped, however, that the cessation of coinage, since it would prevent further increase of the money supply, would lead to a rise in the value of the rupee as the monetary demand of the country increased; and this hope, which was based on sound monetary principles, was realized. The bond uniting the rupee and silver having been broken, their values immediately moved in different directions; the gold price of silver declined from 35 pence in 1893 to 26 pence in 1898, while the rupee, fluctuating at first between 13 and 14 pence, finally began a gradual advance, until in 1898 it reached the desired gold valuation of 16 pence. In September, 1899, gold was declared full legal tender at 15 rupees per sovereign, or 16 pence per rupee. Thus the gold standard was introduced, although the government did not agree to redeem rupees in gold.

For the student of money the transition from silver to gold monometallism in India illustrates certain fundamental principles with the definiteness of a laboratory experiment. It deserves, therefore, careful examination.

It should be noted, in the first place, that between 1893 and 1899 the rupee was fiat money, its value being the product solely of the need for it to serve as money. Prior to 1893 it had been commodity money, its value subject to world forces acting upon the demand for and supply of silver; but after 1893 the rupee was independent of silver, for an increase in the supply of the world's silver could not lead to an increase in the quantity of rupees. Only under two contingencies could the value of silver bullion after 1893 have impressed itself upon the rupee: (1) if silver had risen in value more rapidly than the rupee; or (2) if the rupee, on account of a decreasing monetary demand, had fallen in value more rapidly than silver bullion. In either event rupees would have been melted into bullion and their value kept at par with 165 grains of silver.

Such a change of values, however, did not take place, nor was it to be expected. From a business and monetary point of view India is a developing country, each year bringing additional needs for currency. Furthermore, the national penchant for hoarding cuts into the monetary stock each year. For these two reasons — increase in the demand and reduction of supply — the rupee steadily rose in value after its free coinage was suspended in 1893, and the prices of goods in India correspondingly declined. Meantime silver was depreciating, the large coinage demand from India and from the United States having ceased in the same year.

## GOLD NOT THE STANDARD IN 1893

202. The theory that gold became the standard of India as soon as the free coinage of silver was suspended in 1893, and that the silver rupee became a piece of credit money deriving its value from its prospects of redemption in gold, is not tenable.[1] The government in 1893 made no declaration as to its intentions with regard to the rupee. It announced that it would accept sovereigns in payment of taxes at the rate of 15 rupees per sovereign, but it gave the public no ground for expecting that it would redeem the rupee in gold at that rate.

If the events of 1893 had given rise to a belief that the rupee would be redeemed in gold, and if the rupee had derived its value from that hope or belief, it should have at once risen in value with respect to gold. The rupee, however, was worth less in gold in 1894 and 1895 than it was in 1893; its average exchange rate in 1893 was 14.55 pence, whereas in 1894 it was 13.1 pence; in 1895, 13.65 pence; in 1896, 14.45 pence. On the assumption that the rupee was mere credit money, it is difficult to account for this decline in its gold value, for during these years there was no lack of confidence in the government and no inflation of the money supply, the coinage of rupees having ceased.

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[1] This view has been advanced by some writers. Indeed, Mr. W. W. Carlile, writing in the *Economic Review* for March, 1901, holds that gold was the real standard of value in India after 1873. Such a view would make gold the real standard of value in China at the present time. The only possible ground for Mr. Carlile's position is the fact that the prices of commodities imported from Europe must have tended after 1873 to follow the course of gold prices. For that matter, however, the prices of articles in England which are imported from silver-standard countries tend to follow the variations of prices in the countries from which they are imported, but that fact does not give England the silver standard.

203. In order that the reader may have a clear view of the phenomena of this interesting period we give on this page a table which presents the most pertinent statistics. Columns I and II show the gold value of the rupee and of 165 grains of pure silver from 1890 to 1901. The third column gives the gold value of one ounce of silver (English standard 444 grains pure) for the same period. Column IV gives the Sauerbeck index number, the reciprocal of which shows approximately the fluctuations in the value of gold; column V gives the annual coinage of rupees; column VI, the net imports of gold; column VII gives Mr. Atkinson's index number computed from prices in India.

THE INDIAN RUPEE AND ITS VALUE

| | I Gold Value of Rupee in Pence (Exchange Rate) | II Gold Value 165 Grains Pure Silver | III Gold Price 1 oz. Silver (Eng. Standard = 444 grains) | IV Sauerbeck Index Number | V Coinage of Rupees (000 omitted) | VI Net Imports of Gold in Pounds Sterling (000 omitted) | VII Atkinson Index Number |
|---|---|---|---|---|---|---|---|
| 1890 | 18.09 | 17.74 | 47.75 | 72 | 131,164 | 3,954 | 125 |
| 1891 | 16.73 | 16.70 | 45.0 | 72 | 55,539 | 1,653 | 128 |
| 1892 | 14.77 | 14.98 | 39.75 | 68 | 126,915 | 1,770[1] | 141 |
| 1893 | 14.55 | 13.20 | 35.5 | 68 | 48,125 | 374 | 138 |
| 1894 | 13.10 | 10.73 | 28.9 | 63 | 638[2] | 2,687[1] | 131 |
| 1895 | 13.64 | 11.10 | 30.0 | 62 | 2,110[2] | 1,684 | 128 |
| 1896 | 14.45 | 11.50 | 31.0 | 61 | 3,156[2] | 1,527 | |
| 1897 | 15.35 | 10.25 | 27.5 | 62 | 4,864 | 3,272 | |
| 1898 | 15.98 | 10.03 | 27.0 | 64 | 4,179 | 4,335 | |
| 1899 | 16.0 | 10.25 | 27.5 | 68 | 13,018 | 6,294 | |
| 1900 | 16.0 | 10.40 | 28.0 | 75 | 171,479 | 561 | |
| 1901 | 16.0 | 10.03 | 27.0 | | 49,520 | 1,291 | |

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[1] Net exports of gold.

[2] Coinage in 1894–1897 was mainly of half rupees, which were full legal tender

The reader will notice the following points: (1) that prior to 1893 the figures in the first two columns are nearly identical, the value of the rupee tending to coincide with that of 165 grains of pure silver; (2) that after 1893 the gold value of the rupee was greater than the gold value of 165 grains of silver; (3) that the value of gold between 1893 and 1896 steadily increased, as shown by the decline of the Sauerbeck index number from 68 to 61; (4) that the coinage of rupees between 1893 and 1898 was hardly sufficient to compensate for the loss from hoarding, abrasion, etc., so that during this period the available stock of rupees probably decreased; (5) that the importation of gold was uncommonly large in 1897, 1898, and 1899.

The decline in the gold value of the rupee after 1893, at a time when the rupee itself should not have been falling in value, is explained by reference to column IV, in which gold is shown to be increasing in value. The decline in the gold price of the rupee resulted from the increase in the value of gold. If we assume that the Sauerbeck index number fairly reflects the value of gold, we find that the rupee, between 1893 and 1896, when its gold price was declining, was really rising in value or purchasing power. Continuing the comparison, we find that the purchasing power or value of the rupee began a rapid upward movement in 1894. This advance in its real value is roughly indicated by the decline in the Atkinson index number from 138 in 1893 to 128 in 1895.

## Principle of Bimetallism Illustrated

204. The large influx of gold in 1898 and 1899 illustrates the operation of the principle of the joint standard or bimetallism. In 1899 the government made the sovereign the legal-tender equivalent of 15 rupees, and even before that date it had been willing to accept sovereigns at this rate, which reckoned the rupee as equivalent to 16 pence. Evidently all debts to the government would be paid in sovereigns the moment the value of the rupee was a fraction above 16 pence. During several

months of 1898 it rose above 16 pence, and the importation of gold accordingly became profitable. In 1899, when gold was legal tender for all payments, large quantities of it were imported, for it was the cheaper medium of payment.

Theoretically India still has this double standard, the rupee and the sovereign, the one fiat money, the other commodity money; but practically, since the government has adopted the policy of exchanging gold for rupees, as well as rupees for gold, the value of the rupee is held at 16 pence, and gold is the actual standard.

After 1893 considerable fear was expressed in England lest the government of India would not be able to accumulate a gold reserve sufficient for the maintenance of the gold standard. Our analysis shows that the situation itself necessarily led to the automatic accumulation of a gold reserve. The people of India have little use for gold coins; their favorite money is the silver rupee. Under present conditions rupees will be supplied to the people in sufficient quantities if the government merely adheres to its policy of giving 15 rupees in exchange for a sovereign; and this process, on account of the difference in value between the rupee and 165 grains of silver, — a so-called seigniorage, — will result in the gradual accumulation of a gold reserve. If rupees are coined only under these conditions, and if no bank-note inflation is permitted, no run upon the gold reserve is probable, for that could result only from an excessive supply of currency. Of course, if the monetary need of India should suffer a great decline, as it might on account of depressed industries or famine, the money supply would be redundant and the resultant gold exports might lead to an embarrassing call for rupee redemption. This contingency, however, is little to be feared.

Chart V, on page 305, gives the reader a graphic view of the value of the rupee after 1893 as compared with 16 pence gold and 165 grains of pure silver. The purchasing power of 16 pence gold (indicated by the crossed line) is assumed to be 100 in 1892, and subsequent variations are calculated from the Sauerbeck index number. The value of the rupee in 1892, when it was coequal with 165 grains of silver, was equivalent to 14.77 pence, or 9 per cent less than 16 pence; on the chart, therefore, the line indicating its value (black line) begins at 91. The subsequent variations in the value of the rupee are calculated by a combination of the Sauerbeck index number and the gold price of the rupee; it is of course only a rough approximation, yet it coincides in general with the movement indicated by the Atkinson index number of Indian prices. The fluctuations of Indian exchange, i.e. changes in the gold price of the rupee, are shown by the chained line, reference being made to the figures at the right of the chart. The value of 165 grains of silver is shown by the dotted line; until 1893 it was of necessity practically coincident with the black line showing the value of the rupee.

The chart shows that the rupee rose in value during 1894 and 1895, although during these years its gold price was declining, and that it reached parity with 16 pence in 1898. Any further advance was impossible, for the reason that even a fractional advance above 16 pence caused a transference of the monetary demand from the rupee to gold. The fall in the value of silver after 1893 is a striking illustration of the influence which the monetary demand for a metal exerts upon its value; and the whole experience of India from 1893 to 1899 illustrates the concurrent use of a double standard.

205. Our analysis of fiat-money systems by no means exhausts the material afforded by the world's experience. The student will find in history numerous instances of fiat money originating in the depreciation of credit money. Perhaps the best-known illustrations are John Law's paper money issued about 1720 in France and the assignat of the French Revolution.[1] American colonial history also furnishes instructive and interesting experiments. But the student need not look to history for illustrations, for several foreign countries, notably Russia, Germany, and Austria, are upon a fiat basis at the present time.

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[1] Some details concerning the issue of assignats are given in Section 209; see also A. D. White's *Fiat Money Inflation in France.* Law's money is well sketched in Nicholson's *Money and Monetarv Problems.*

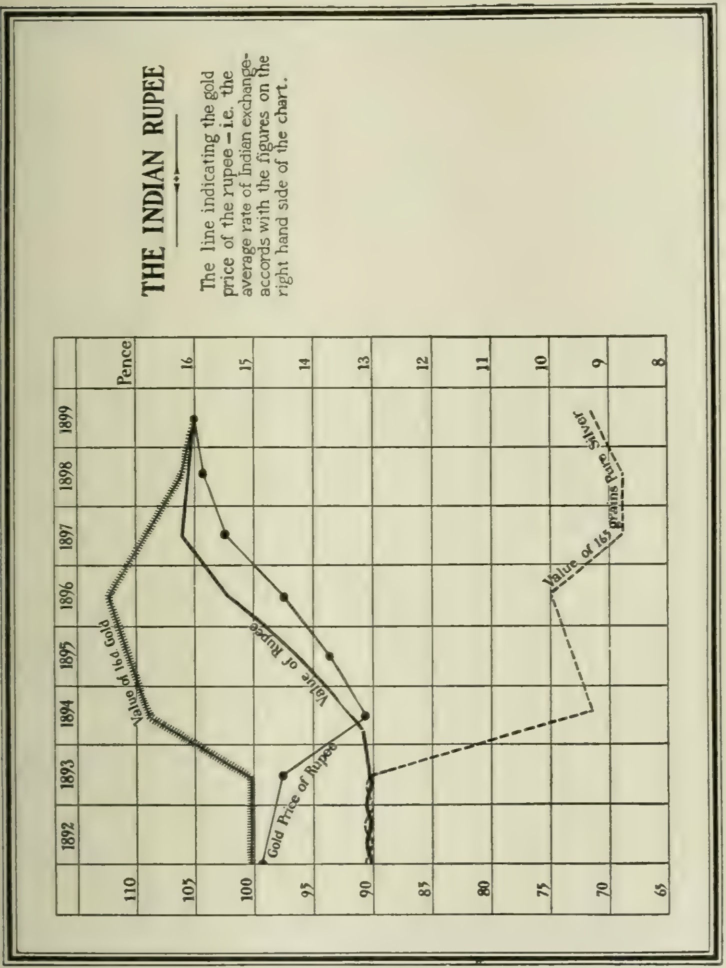
THE INDIAN RUPEE
The line indicating the gold price of the rupee — i.e. the average rate of Indian exchange — accords with the figures on the right hand side of the chart.
1892
1893
1894
1895
1896
1897
1898
1899
Pence
16
15
14
13
12
11
10
9
8
110
105
100
95
90
85
80
75
70
65
Value of 16d Gold
Value of Rupee
Gold Price of Rupee
Value of 165 grains Pure Silver

CHART V

## Advantages claimed for Fiat Money

206. We are now ready for a consideration of certain theoretical advantages which are claimed for fiat money, and for the discussion of various plans proposed for their realization. This task, which now seems to be of academic interest only, may at any time become a live issue, for in the United States there exists as an evil heritage of the greenback era a latent antipathy to metal money, which any sudden emergency, whether born of war or industrial depression, may convert into a real peril.

Some theorists upon money, deeply impressed by the imperfections of commodity money, have advocated the deliberate adoption of a fiat standard. They have called it by various names, such as scientific money, ideal money, absolute money. Stability of value, that is, a uniform price level, is to be secured by artificial regulation of the supply. It is proposed, for example, that a government board of statisticians shall construct an official index number of prices and that the supply of paper money shall be inflated when this index number tends downward, and contracted when it tends upward. Fiat money issued under such conditions, it is held, would be superior to metal money in three respects: (1) it would be more economical; (2) its value would be more stable; and (3) its supply could not be "cornered."

If the feasibility of a stable fiat money be granted, the first advantage cannot be denied. Gold and silver are costly materials for money. Every year large sums of capital and the labor of many thousand men are devoted to the production of these metals. If they were not used as money, their value would fall, smaller quantities would then be mined, and considerable labor and capital would be set free for the creation of other utilities. In other words, if the world could safely employ fiat paper money, its wealth would increase more rapidly than it does at present, for many of the men engaged in digging for gold and silver could then be employed in producing the necessaries and comforts of life.

If it be granted that fiat paper money can be maintained at a stable value, then its use would save the business world from the alternating periods of fictitious prosperity and unnecessary depression now caused by the inevitable fluctuations of gold and silver. Since no commodity would decline in price except as it fell in value, one of the causes of perplexity and failure in the business world would be removed. Money would then be a real standard of value, for value and price would practically be synonymous. It cannot be denied that such an ideal money, if it were attainable, would possess great advantages over gold and silver, for stability of value is the most desirable characteristic of money.

As for the "cornering" of money, only among the ignorant has there ever been any fear of such a feat being attempted. No speculator or clique of speculators has ever tried to corner the money of a country. Such an undertaking would react disastrously upon the conspirators. In order to acquire a "controlling interest" in the money supply they would be compelled to sell their own property upon a descending scale of prices, so that every step they took would result in a tremendous reduction of their resources. The cornering of money would prove a Sisyphean task, for each abstraction from the supply would lift the value of the remainder to the level first held by the total supply. Wise speculators would not plan such a coup, and foolish ones would ruin only themselves. Furthermore, gold flows from country to country with the greatest possible freedom, so that any attempt to depress prices in a single country by the segregation of a large quantity of gold would inevitably be futile.

### Defects of Fiat Money

207. Three strong objections must be urged against a so-called ideal money. In the first place, it is not clear how the supply of such money can be effectively regulated without damage to business. The power of artificial expansion and contraction should be lodged only with men who are in touch with business operations. The establishment of a government bank

having branches in all parts of the country, doing a general business in deposit and discount and having power to issue fiat money at will, would seem to be necessary. Such a bank, by the contraction of its loans and discounts, could depress or inflate prices at will. But within what limits should fluctuations be confined? Should a rise of prices due to a legitimate expansion of credit be summarily checked? At a time when conditions warrant industrial activity and a natural expansion of credit would not a curtailment of the money supply act like a wet blanket upon enterprise and weaken the productive energy of a people? How shall the official statisticians determine whether a rise of prices is due to credit or to an excess of money? The idea of a scientific fiat money suggests numerous questions like these. Perhaps they can be answered, but as yet they have not even been discussed.

Granting, however, that a practicable scheme can be devised, its adoption at the present time or in the near future would be attended by a risk more than offsetting the accruing benefits. There is no nation on earth in which the conditions exist that are essential to the stability of fiat money, for there is no nation in which the nature of such money and the circumstances governing its value are understood by the masses of the people. There could be no confidence with regard to the future value of such money, for there could be no certainty that the plan of restriction would be adhered to. Since every expansion would afford relief to the business community and every contraction would be attended by financial stringency, by high rates of interest, and by more or less industrial strangulation, the weight of public opinion would evidently be in favor of expansion and opposed to contraction. In the United States, for example, an act of Congress providing for the restricted issue of such money might be amended or even repealed by the next Congress. Indeed, the next Congress might be composed of men honestly convinced that the supply of money was too small, and that if it were doubled the nation's prosperity would be greatly increased. No one who has followed the newspaper and magazine discussion of the money question during the last twenty years can be in doubt about the dangerous qualities of the "isms" to which this country would be exposed were it to attempt to realize the dreams of the "scientific" money theorists.

A third objection to any form of fiat money is found in the foreign exchanges. No matter how stable the money might be in value, its relation to the standards of other countries would be constantly fluctuating. So long as other countries continued to use gold or silver as their standard of prices, the United States, by the adoption of fiat money, would put itself at a disadvantage in foreign commerce. A change in the value of gold or silver would work artificial and mischievous interference with the country's imports and exports. Importers would never be certain of their costs measured in the money of this country, and exporters would never be sure of the value of their receipts. Since dealers in foreign bills of exchange would incur speculative risks, merchants would be compelled to buy exchange at prices high enough to provide, as it were, an insurance fund to cover these risks.

Furthermore, this fluctuation in the rates of exchange would tend to retard the development of a country, for it would discourage the investment of foreign capital. At a time when gold was rising in value our fiat money would seem to foreigners to be depreciating, and they would be averse to sending their capital here, just as they shrank from investing in Mexico and India while the gold price of silver was declining. The evils caused by exchange fluctuations were the real cause of the adoption of the gold standard by Russia and Austria. Financiers in those countries were convinced that the funds needed for internal development would not be advanced by foreigners so long as there was uncertainty about the gold value of the Russian ruble or the Austrian florin. Events justified this view. As soon as the gold policy was definitely decided upon by Russia and Austria foreign capital poured in. Indeed, the influx of foreign capital into Austria in 1892, the date of the gold-standard law, caused a boom in Austria's industries and securities which came near ending in panic, so quickly and powerfully had the stimulus been applied. Russia experienced similar effects. Since 1890 more foreign capital has found employment in Russia in the building of railroads and factories than had been invested in that country during the entire century preceding. This sudden burst of prosperity in Russia and Austria is sometimes pointed to as evidence of the superior qualifications of gold as a money metal. This view is a mistake. The industrial revival in Austria and Russia proves not that gold is the best money possible but that any country is at a disadvantage if its monetary standard differs from that of its rich and prosperous neighbors.

### Paper-Money Advocates in the United States

208. Political agitators who have clamored for paper money in the United States have not had in mind ideal fiat money. They want no limitation of the supply. They hold that if the vast wealth and credit of the United States were back of paper money there could be no depreciation, for there could never be too much money. A common proposal is that the government shall issue paper money in such abundance that it can be advanced at a low rate of interest to every man who can deposit as security either farm produce or a mortgage on land. Since money of this kind would have genuine value back of it, how, asks the demagogue, could it depreciate? Would it not always be worth its face value? A man who has no grasp of the principles upon which the value of money depends might find it difficult to answer these questions. Nevertheless there cannot be the slightest doubt that paper money freely issued and loaned in this way would rapidly depreciate.

Let us suppose that the plan were adopted by Congress and that paper money amounting to $2,000,000,000 were issued and loaned to people depositing the proper security at Washington. The result would be a doubling of the money supply of the United States without any corresponding increase in the volume of wealth to be exchanged. Since double the old amount of money would be offered for goods, prices would be lifted 100 per cent and all gold would be exported or withdrawn from circulation. A farmer who had been worth $10,000 would before long be worth $20,000. Each of the borrowers could go to the government and, by showing the increased "value" of his property, could double his loan, thus adding another $2,000,000,000 to the money of the country and causing another lift of prices. The farmer originally worth $10,000 would become worth $30,000, and would have security for a loan three times as large as in the beginning. So with every increase of the money supply prices would rise and the power to borrow money would increase. This might go on *ad infinitum.* Many people would think they were getting rich because the money value of their possessions was increasing, but it must be evident to the reader that a rise of prices caused in this manner would indicate no increase whatever in the real value of goods. Men would be no better off on account of their greater supply of money, for the purchasing power of each dollar would be steadily on the decline. The adoption of such a plan would necessarily lead to wild speculation and a general suspension of industrial operations.

## French Experience with the Assignat

209. The foregoing hypothetical description, exaggerated though it may seem, is paralleled by the experience of France with fiat money after the revolution in 1789. The new republic was poor in specie but rich in real estate confiscated from the church. These church lands were made the basis for an issue of paper money known as the "assignat." Nominally these assignats were credit instruments — promises to pay coin — and were secured by pledge of the lands of the republic. They constituted, so to speak, a general mortgage upon the property of the republic, and were convertible into land at the option of the holder. Although they were not redeemable in coin they seemed abundantly secured, and many people were unable to understand why specie should command a premium. As fresh issues of the assignats were put forth, however, the premium

on gold and silver steadily rose, and great popular indignation was manifested against the bullion dealers, who were believed to be discriminating with no good reason against the assignat. Men who offered their goods at two prices — a high price for paper money, a low price for specie — were denounced as enemies of the republic. The Assembly even declared it illegal for a seller to make any distinction between assignats and specie. Nevertheless the assignat steadily declined in value and gold and silver entirely disappeared from circulation. From about 2,000,000,000 fr. in 1793 the issues increased in 1796 to 45,000,000,000 fr. (about $9,000,000,000). Prices rose to dazzling heights. The masses for a time thought that their dreams of wealth were being realized. A Parisian laundress after emptying her basket of fresh linen at the house of a customer went home with it full of paper money.

In 1796 the assignats were made convertible at a great discount into mandats, a new kind of paper money which was also exchangeable for land. The mandats, although their quantity was not large, possessed little value, the people having lost all confidence in money of that kind.

Since the assignat and the mandat were a lien upon real estate, why should they have depreciated? The security possessed ample value and the government freely permitted conversion of paper money into land. They depreciated, nevertheless, because the price at which land was convertible kept rising constantly, so that the land value of the assignat steadily declined. The assignat was not a mortgage upon any particular piece of real estate; it was a mortgage upon property in general. In pledging the property of the republic as security the government could do no more than agree to accept the assignat in payment for this land. Evidently steady value could not be given to it by such an agreement unless the prices at which the land would be sold were fixed in the beginning for all time. Its value was due entirely to its services as money, and necessarily declined as the quantity was increased. Such must be the fate of any kind of money based upon property unless the supply is strictly limited.

210. Even though we grant the theoretical advantages of fiat money and leave open the question of its practicability, we could not favor its adoption, for under present conditions or any likely to exist for many years to come fiat money would lack the important element of permanence, would hamper international trade, and would make the country adopting it an alien in the loan markets of the world. However scientific its inception might be, fiat money could have no firmer base than the caprice of a single generation. The advocates of "ideal" money fail to see that it presupposes an ideal community. They fail, furthermore, like the advocates of volapük and spelling reform, to recognize the fact that certain human institutions, of which money and language are conspicuous illustrations, are the product of a long evolutionary process in which the reason of man has played little part. The phonetic and linguistic idealists, although their arguments are unanswerable, make no impact on the vernacular or its orthography; but they do no harm. Unfortunately the arguments of money idealists are not equally futile or harmless. To the ignorant man money is the mysterious symbol of universal wealth, and he is easily fascinated by any scheme which promises him a larger supply. The fact that ideal money can be made by a printing press appeals to him strongly. When theorists tell him that such money is better than gold or silver, and politicians assure him that his wages will be advanced, his vote is won. Votes won in this fashion — an ever-present peril in a democracy — would open not the portals of Utopia but the flood gates of financial chaos.

## LITERATURE

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of the United States Director of the Mint, especially for the years following 1892; C. A. Conant, *Modern Banks of Issue.* See also *Money and Prices in Foreign Countries* (publication of the State Department, Washington). A good account of the Russian monetary reform is given in the *Report of the Director of the Mint for 1898*, and additional information in the reports for 1896 and 1899.

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The world's experience with fiat money since the World War is recounted in numerous periodicals and government reports. Perhaps the most accessible and satisfactory source of information for the student is the file of the *Federal Reserve Bulletin.*

# CHAPTER XV

## CREDIT MONEY

211. The value of credit money depends upon the value of money and not at all upon the value of the material out of which it is made. 212. An increase of the supply of credit money tends to lower the value of money within a country. 213. The arbitrary issue of credit money in a gold-standard country tends to cause an exportation of gold and to lower the value of gold in all countries. 214. Convertible credit money does not depreciate by an amount exceeding the expense of redemption. 215. Inconvertible credit money depreciates when there is doubt about its future purchasing power or when its supply is excessive. 216. Credit money economizes the use of money, and when properly issued it makes the currency elastic. 217. Elasticity of the currency prevents abnormal changes in prices and the rate of interest. 218. Credit alone can render the currency elastic. 219. An elastic element in the currency reduces to a minimum the importation and exportation of gold. 220. Credit money is now issued by governments and by banks. 221. Two serious defects of government credit money: (*a*) inelasticity; (*b*) difficulties of redemption. 222. The issue of government credit money is attended by a risk psychological in its nature. 223. It is impossible to fix a safety limit of issue. 224. Why inconvertible government credit money does not depreciate. 225. Should credit money be a legal tender? 226. The bank note, if issued under proper conditions, is ideal credit money. Points of resemblance between the bank note and a bank deposit. 227. A consideration of the legal restrictions placed upon the issue of bank notes. 228. Various plans to secure the convertibility of bank notes. 229. The currency school and the banking school. 230. Redemption should be as easy and as certain as issue. 231. The question of banking reform in the United States.

211. Any promise to pay money which all the people of a country are willing to accept in lieu of money is called credit or representative money. Some forms of credit money are made legal tender by law and some are not. Credit money must be a form of credit payable on demand, and should not bear interest, for the accrued interest would give it a different value from day to day. The promisor in case of credit money must be a person or institution in whom all people have confidence, otherwise it would not be universally acceptable as a means of payment.

Credit money is designated "token money" by some writers. This expression, however, is commonly restricted to credit money of small denominations, which possesses limited or no legal-tender quality. It was first applied in England to small coins issued by private persons without authority of the government. In the United States token money includes the so-called subsidiary coins, namely, pennies, nickels, silver half dollars, quarters, and dimes.

The value of credit money, as of any credit instrument, depends upon the value of the thing promised, that is, upon the value of money itself. The value of credit money rises when the value of money rises. It cannot be said to have value in itself any more than the image in a mirror can be said to have substance. As the mirror reflects what is before it, so credit money reflects or represents the value of real money. Since credit money is popularly called money, the latter by way of distinction is often styled standard money. Standard money may be either commodity or fiat money, and credit money may be a promise to pay either of these.

The value of credit money hinges in no way upon that of the material out of which it is made. In this respect it is like fiat money, but that is their only point of resemblance. Fiat money gets its value altogether from its possession of money utilities, from the demand for and supply of money; whereas credit money has only a borrowed or reflected value varying with that of the money which it promises to pay.

212. The use of credit money tends to lessen the value of money and so causes prices to be higher than they would be if it were not used. This proposition is true with regard to all forms of credit. As was shown in Chapter IV, credit is to be regarded as a circumstance lessening the demand for money and having the same effect upon prices as an increase in the supply of money. While credit money constitutes no exception to this general rule, its close resemblance to money makes some further analysis necessary.

Since credit money is a universally acceptable medium of exchange, any increase in its supply without a corresponding growth in the demand for money immediately tends to lower the purchasing power of money by causing prices to rise. While credit, as has been shown, should properly be regarded not as a substitute for money but rather as a device for increasing the efficiency of money, nevertheless credit money within a country does come very near being a complete substitute, for as a medium of exchange, and as a banking reserve if it is legal tender, it is capable of doing all that money itself does. So any increase in the supply of legal tender credit money is practically the same as an increase in the supply of standard money, and the first effect upon prices is the same.

213. When several countries use the same metal as money, gold for example, an increase in the supply of credit money in any one of these countries must tend to affect prices in all, for it will tend to lessen the value of gold. Since credit money is acceptable only within the country of its issue, it can evidently have no direct effect upon prices in other countries, for it will in no way increase the apparent purchasing power of people in these countries. It will, however, render unnecessary a certain amount of gold within the country in which it is issued, and that gold will be exported, increasing the supply in other countries and so tending to lift prices there.

This exportation of gold will take place automatically as a result of differences in price levels and discount rates. No nation ever thinks it has too much money and none ever exports gold with the conscious intention of reducing its money supply. The movement is always automatic. The issue of credit money in any country causes prices to rise above the level prevailing elsewhere. It thus becomes a good market for sellers but a poor one for buyers. As a result its exports tend to decrease and its imports to increase. In this way a so-called balance of trade is brought about and an exportation of gold made necessary. Assuming that the demand for money has undergone no change whatever in any of the countries concerned, this exportation of gold would equal the amount of credit money which had been issued less the small percentage of additional currency made necessary by the higher prices. The conditions here assumed of course never exist, for the money demand is subject to constant fluctuations; yet it is perfectly true that an issue of credit money, unless made in response to a greater demand, always tends to expel an approximately equivalent amount of gold from circulation. Likewise, if a country using silver as money makes an arbitrary increase of its supply of credit money, such increase will tend to cause the exportation of a nearly equal amount of silver.

The exportation of gold caused by an issue of credit money is sometimes incorrectly referred to as an application of Gresham's law. This law as originally formulated relates only to coins of the same metal the weights of which differ on account of clipping and abrasion. When the money supply of a country consists of gold coins, if any occasion arises for the exportation of these coins, the heavier will always be selected by the exporter, for these will have a higher bullion value abroad, whereas at home they are worth no more as money than the worn and clipped coins.

## Convertible Credit Money

214. Credit money is called convertible when it is redeemed on demand, and inconvertible when not so redeemed. Under certain conditions both convertible and inconvertible credit money circulate at par with the money they represent; under other conditions both tend to depreciate.

Convertible credit money so long as its convertibility is maintained will not depreciate by an amount exceeding the expense of redemption. If it is issued in excess of the monetary demand, a stimulus is given to prices, an export demand for gold is created, and credit money is presented for redemption by persons desiring gold. If the expense of redemption amounts to 2 per cent, then the credit money will be at a discount of 2 per cent, but that will be the limit of its depreciation. The result would be the same even in a country which had no foreign trade relations. In such an isolated country an artificial increase of the supply of convertible credit money would tend to raise prices, but such tendency would be almost instantly checked by the desire of people, especially bankers, to obtain the gold which the credit money represented. At a given level of prices a certain amount of hand-to-hand money is needed; if the amount in circulation is increased arbitrarily by an issue of credit money exceeding the demand, the excess quickly finds its way into the banks and is by them sent home for redemption.

When convertible credit money is legal tender, larger quantities of it may be kept in circulation than when it is not legal tender, for it may then be counted in the reserves of banks. An artificial increase in the supply of legal-tender credit money, by causing an upward tendency of prices, will usually lead to an exportation of gold or to its larger use in the arts, the new credit money permanently displacing it in banking reserves. The issue of such credit money, if it is to remain convertible, must evidently cease before all the gold has been withdrawn from the monetary stock.

The effect of an artificial issue of legal-tender convertible credit money was forcibly illustrated in the United States between 1890 and 1893, when new United States notes to the amount of $155,000,000 were issued in payment for silver bullion purchased under the law of 1890. These so-called Treasury notes of 1890 were legal tender and were redeemable in gold[1] on demand. Their issue inflated the currency and caused a large exportation of gold. The government's credit money did not depreciate, for redemption was maintained.

## Causes of Depreciation

215. Inconvertible credit money may depreciate because its supply is excessive or because its future purchasing power is in doubt. The extreme limit to which such currency, if legal tender, might be issued under the most favoring conditions conceivable would be the amount of money that would be in use were no credit money in existence. For instance, suppose that a country having no kind of credit currency is using a

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[1] Technically they were redeemable in "coin," but this was interpreted as meaning gold.

billion dollars of gold as money. If the people have absolute confidence in their government, it is conceivable that a billion dollars credit money might be issued without any depreciation or rise of prices. A credit dollar would merely take the place of each real dollar, but any further issue of credit money would necessarily cause depreciation and a rise of prices.

Practically, however, depreciation would begin before the limit theoretically possible had been reached, for long before all the gold had been expelled from circulation doubt would arise about the future value or purchasing power of the credit money. Credit currency begins to lose acceptability as a medium of exchange the moment people begin to fear it may decline in value. The supply may not be excessive and the question of ultimate redemption may not be raised; it is enough if the people fear that the credit dollar will not to-morrow buy a dollar's worth of goods. For a time the monetary situation in such a country would be abnormal. Some exchanges would doubtless be made with gold and some with the depreciated credit money. Under such conditions business operations in general would be greatly reduced. There would not be gold enough in the country to carry on the usual business exclusively in gold, nor enough credit money to satisfy the whole of the old demand for money. As in the early days of our Civil War, men would be at a loss what price to ask for their goods and a financial and industrial panic would doubtless result. After the panic one of two things would probably happen: Either the people would regain confidence in the credit money and resume its use on a par with gold, or the government might increase its supply, force its use upon the people, and drive all the gold out of the country, as Russia did after the Crimean War. Depreciated credit money so forced into circulation becomes fiat money.

In the United States the silver dollar is a good illustration of inconvertible credit money. It circulates at par with gold because of limitation of the supply and because of popular confidence in the government. Redemption of the silver dollar in gold is not guaranteed, yet the average creditor, if offered his choice between a gold coin and a silver certificate, will take the paper. But this confidence in the future value of the silver certificate would quickly disappear if Congress should manifest a disposition to purchase more silver or issue fresh supplies of credit currency.

216. Credit money, when properly issued, serves two useful purposes: (1) it economizes the use of money; (2) it makes the supply of currency elastic.

The first service needs little comment. Gold, which is the money of the civilized world to-day, is a most valuable commodity, produced only by an outlay of much labor and capital. Its use as hand-to-hand money is attended with considerable loss from abrasion. In large transactions it is less convenient than paper credit money. Less gold being needed when credit money is in existence, its value is lower and less is mined, so that more of man's energy may be devoted to the satisfaction of other wants. These considerations alone justify the existence of a certain volume of credit money.

The second service is by far the more important. As was pointed out in Chapter III, an ideal credit system is one in which the supply of credit automatically adjusts itself to variations in the need for a medium of exchange. If the volume of business is growing and the conditions are such as give rise to an increased need for the use of checks, drafts, and bills of exchange, then there should be no artificial restriction upon the creation of credit instruments possessing limited acceptability, each man being left free to judge whom he can safely trust. Then business will move smoothly and prices will not suffer from a scarcity of exchange media. On the other hand, when the growing volume of business is of a kind calling for more hand-to-hand money, then the power to write checks and drafts is unavailing, and an increase in the supply of credit of unlimited acceptability, i.e. credit money, is necessary to prevent financial stringency and depression. A credit system which does not under such circumstances provide for the issue of more credit money as it is needed, and for its automatic withdrawal from circulation when the extraordinary need is over, is seriously defective.

To English readers the importance of this point can hardly be exaggerated, for the credit systems of both England and the United States are in this respect defective. A complete discussion of the subject, reinforced by the facts of experience, belongs to a book on credit and banking. In this chapter we can do little more than state the general principles.

### ELASTICITY OF THE CURRENCY

217. An elastic credit element in the supply of currency is important for two reasons: (1) because an excess or scarcity of cash abnormally affects prices and the rate of interest; (2) because the supply of money (gold) cannot be increased or diminished except slowly and after business interests have suffered.

The reader who understands the exposition given in Chapter V of the laws governing the international movements of currency will need no extended discussion of these two points. At present, when the United States as a whole needs more cash it can be obtained only by an importation of gold; but before it becomes profitable to import gold the prices of American goods and securities must be lowered until foreigners are induced to increase their purchases, and usually our rate of discount must be raised until the holders of gold in Europe are tempted to increase their investments in the United States. This means that in order to enlarge the volume of our currency we are forced to sell goods at a sacrifice and to hire capital at an exorbitant rate. The reader must bear in mind that this whole process takes place automatically, no man engaged in it being conscious of the part he plays.

In like manner, since our supply of domestic currency is rigid, movements of cash from one part of the United States to another are usually the result of distress already felt in the place to which it goes and the cause of distress in the place from which it is taken. In the autumn, for instance, the West and the South are exchanging their agricultural products, and the sellers want cash, not checks and drafts. The eastern cities cannot escape the consequences. Western and southern banks, in order to keep their reserves unimpaired, are obliged to contract their loans and draw on their deposits in eastern banks. As a result, currency flows from New York to the West and the South, — sometimes $100,000,000 in amount, — discount rates rise in New York, prices weaken, and gold is imported. In the winter, the special need for cash in agricultural sections being past, a reversal of the process begins. Currency is shipped back to New York, and the gold which had been wrested from Europe at great cost in October and November is exported in March and April.

These fluctuations of prices and interest rates are not an insignificant matter. They mean positive loss to the country, unnecessarily high rates of interest to the manufacturer and merchant, and unnaturally low prices to the farmer and planter.

218. Credit alone, in the form of credit money, can supply the elastic element which is needed in the currency of a country, and this is the most important service which credit money can perform. When properly issued it should not cause prices to rise; it simply should prevent a fall of prices, for it should be put forth only in response to a growing need for currency and to an amount not exceeding the increase in the demand. And when withdrawn from circulation it should not cause a fall of prices, for the amount taken away should correspond with the reduction in the need for currency. Such is the service to be performed by ideal credit money, and it is one that can be performed by no other instrument or device.

It has sometimes been argued that an elastic credit money is not needed, on the ground that sufficient elasticity is furnished by so-called deposit currency, i.e. by checks and drafts. Those who take this position do not understand the problem. An increasing need for hand-to-hand money cannot be met by the writing of more checks and drafts. What is wanted is more cash, and that can be supplied quickly and without cost only by credit of general acceptability, i.e. credit money.

219. An indirect benefit of ideal credit money remains to be noted, namely, that it will reduce to a minimum the importation

and exportation of gold. Readers of English and American newspapers know how business interests are disturbed by a threatened outflow of gold, and we have seen that the alarm on this score is not without good cause. A country in which credit is permitted to satisfy temporary needs for currency will export gold only when it has, so to speak, a permanent surplus, so that benefit rather than harm will result from the exportation; and it will import gold only when there is need for a permanent addition to its stock.

These propositions are abundantly confirmed by the experience of different countries. England and the United States, the two countries most disturbed by gold exports, have almost absolutely inelastic monetary systems, the credit money in each being issued under conditions that forbid an automatic expansion and contraction in response to a varying demand for money. On the other hand, France and Canada, each with a credit money almost perfectly elastic, are never embarrassed by the movements of gold. In these two countries the rate of interest hardly varies from season to season, but represents, as it should, the real demand for and supply of capital; whereas in England and the United States the rate is almost constantly moving up and down, being kept from its normal level by scarcity or by overplus of money.

## Government Credit Money

220. Let us examine the different kinds of credit money in use and determine their fitness for the important services which this form of credit can render. A hundred years ago the promissory notes of individuals were often used as credit money, but in most countries, on account of the importance of credit money, the law now forbids the issue of notes for this use except by institutions duly organized. At the present time credit money is issued only by governments or by banks. In the United States we have both kinds of credit money. Subsidiary coinage excepted, that being always issued in civilized countries by governments, England has only bank notes;

Germany and France have bank notes and silver credit money issued by the government. Russia and Austria have recently supplanted government notes with bank notes.

Issues of credit money by governments, with some slight exceptions, have never been in response to a need for currency on the part of the people but have been the result of fiscal necessities. Government credit money is a forced loan from the people. Governments in need of funds, when unable to sell bonds to advantage, have often forced into circulation their own promises to pay and compelled the people to accept these in lieu of gold and silver. These issues of credit money always drive out a corresponding amount of metal money, but the equivalent of that metal in the form of purchasing power passes over to the government. A government which issues demand notes for use as money really borrows from its people as much as if it sold bonds to them and took gold in payment. Such an issue compels the people to send some of their gold abroad in the purchase of foreign goods and at the same time deprives some of them of the foreign markets in which they have been selling goods. The fact that no man attributes to the new credit money the subtle change in prices and the mysterious advantage given to the foreign exporter makes it possible for governments to borrow in this way without protest from the people. Nevertheless such an issue of credit money is always a loan from the people and they alone carry the burden.

A forced loan from the people by the issue of government credit money is bad from both the financial and the monetary point of view. It is an unwise financial policy, for the burden of the loan falls upon rich and poor alike. When a government borrows by the sale of bonds it borrows from men who are able to lend and glad of the investment; then it takes only that capital which can best be spared from the country's wealth. But when it borrows by an issue of credit money it lays its hand on all classes of capital alike and temporarily disturbs the normal conditions of every industry.

221. As currency, government credit money possesses two inherent defects: (1) being inelastic, it does not prevent price

fluctuations ; (2) its redemption imposes a task on the government for the proper performance of which it lacks natural facilities.

Government credit money necessarily lacks what is called elasticity, for its quantity cannot be varied to meet changes in the demand for money. Finance ministers and parliaments are not in touch with business and cannot forecast or measure monetary needs. For this reason, even though they made the attempt, — which they seldom do, — they could not by arbitrary measures make the volume of credit money conform to a country's needs. In this important respect government credit money must always fail.

For the redemption of credit money a government must make special and artificial provision. Normally credit is the outgrowth of a business transaction, of a sale or purchase of goods, and something of value, exchangeable for money, is always in the hands of the debtor, so that the credit is easily redeemed. A government, however, is not engaged in business. It does not issue credit money in exchange for live assets. For the redemption of its credit it must rely on its taxing power and on the arbitrary massing of gold in its treasury. This latter is expensive and is fraught with danger. The amount of the gold reserve is known to the public and every demand upon it is a matter of common knowledge. It may be granted that the government has the power to maintain a reserve large enough for the purpose, and that this need not equal the full amount of credit money in circulation ; the people, nevertheless, naturally regard the gold reserve as being very significant and important, and any extraordinary redemption of credit money is certain to provoke discussion and alarm. Since everybody knows that the gold reserve is not equal to the possible demand upon it, there is apt to arise an unreasoning fear lest it may be exhausted and the credit money in consequence depreciate. The government, if the gold reserve is depleted, can replenish it only by the sale of bonds or by appeal to bankers for assistance, and such steps are liable to increase popular distrust.

The United States is the only great nation in the world which in normal times assumes responsibility for redeeming a great amount of credit money. In all other countries credit money, when it is redeemed at all, is taken care of, for the most part, by banking institutions more or less related to the government. These banking institutions, on account of their important place in business affairs, are able to influence the market rate of interest and so can attract gold in a natural way by raising their rate of discount. In the same way it is possible for them to discourage the export of gold by raising the interest rate, for the profit which the owners of gold can get from it within the country is thus increased. The United States, however, is unable to adopt these measures either to increase its gold reserve or to prevent its depletion. It can maintain the parity of its credit money only by the adoption of measures which attract public attention and tend to augment the danger, for people easily grow suspicious and present credit money for redemption, not because they need the gold for international uses but simply to be on the safe side.

222. Still another risk, especially in a republic, attends the use of government credit money. This risk is psychological in nature. The money is so easily issued and costs so little that people get the impression that it is the best possible kind. Since goods are exchanged with credit money as readily as with gold, the average man is unable to understand why credit money should not be used altogether; so when the government needs money in any emergency he is inclined to favor the use of more credit money rather than the imposition of higher taxes or the sale of interest-bearing bonds. Taxes attack his pocket directly, and the bonds he knows must be paid in the future; whereas by the issue of credit money the government seems to get the same result without imposing a burden on anybody. People do not understand the effect which the issue of credit money has upon the value of money, and hence are prone to clamor for its issue beyond the point of safety. After the Civil War, for example, many people were convinced that the greenback was better "money" than gold.

### PROPER LIMIT OF ISSUE

223. It is impossible at any time to fix the safety limit for the issue of government credit money. A stable government in which people have full confidence can evidently issue a larger quantity than one in whose stability or financial power there is little confidence. The quantity of credit money which a government can maintain at par must evidently vary at different times. When peace prevails and taxes are easily collected a larger quantity of credit money can be kept at par than in time of war or in times when the poverty of the people is reducing the tax receipts. Credit money can be made to serve its true purpose only so long as the people have faith in the power and purpose of the government to redeem it; the moment that faith wavers the credit money will depreciate on account of a lessening demand for it.

Theoretically it is possible for a nation in which the people have absolute confidence to keep at par an issue of credit money equal to the total amount of gold which would be in circulation if no credit money were issued. No country could do this, of course, unless it constantly redeemed its credit money upon demand. Such a government would be obliged to maintain a gold reserve for redemption purposes, and experience alone could decide how large this reserve ought to be. If people had absolute confidence in the ability and will of the government to redeem the credit money, and preferred it to gold as a medium of exchange and as a store of value, so that the banks of the country kept their reserves in credit money, then it would be presented for redemption only by people who desired gold for international payments. What this demand would amount to would depend upon the country's position as a producer and consumer of gold and upon the extent to which its need for currency varied from season to season.

224. A certain amount of government credit money may be kept at par with gold even though no provision is made for its redemption. The monetary systems of Germany, France, and the United States evidence the truth of this proposition. About

one fifth of Germany's money consists of silver coins which the government does not undertake to redeem in gold. Nearly one third of the money of France is silver which cannot be exchanged for gold except at the pleasure of the Bank of France. The United States has long maintained at par with gold five hundred million dollars of silver money, although the law does not provide for its redemption.

Why does this irredeemable credit money not depreciate? There are several reasons. First, because the governments of these countries have made this credit money legal tender for the payment of all debts, including public dues, and thus have given it a large field of usefulness. But this alone would not keep the credit money at par. There is another force at work, namely, the confidence of the people in the good faith of their rulers, who in making this credit money legal tender have given the people an implicit pledge that it shall be kept at par with gold. If any one of these nations should increase the supply of its irredeemable credit money to such an extent as to arouse doubt with regard to its future purchasing power, there would be danger of immediate depreciation, for business men would begin to discriminate against it. Something of the sort happened in the United States with regard to the silver dollar after its coinage began in 1878. The banks of New York, for example, refused to count silver as part of their reserve, and many business men when making contracts running over a period of years inserted a clause guaranteeing payment in gold.

A third reason why this unredeemed credit money is kept at par with gold is the fact that it is in small denominations and so forms the pocket money of the people. It is needed by the people every day and is never held in large quantities by any one person or institution. A man who wishes gold for export would not think of getting together silver dollars in order to have them exchanged for gold, even though they were directly redeemable.

We may conclude, therefore, that any country with an honest, stable government may safely have in circulation credit money of small denominations — say $10 and under in the United

States — to an amount not exceeding the sum required by the people as pocket and till money. If more than this amount is issued, the surplus is likely to accumulate in the hands of some person or bank and to give rise to dangerous conjecture as to its value.

225. Should credit money be a legal tender? To this question no general or positive answer should be offered, for much depends on the conditions of issue and on the security provided for redemption. When credit money is simply a certificate of gold deposited, as are the notes of the Bank of England and the gold certificates of the United States, there is no reason why its acceptance should not be compelled by legal-tender enactment. In the United States $737,000,000 in gold certificates were outstanding in July, 1923, and these certificates were a title to $737,000,000 in gold held in trust by the national Treasury. They may be treated, therefore, as being practically gold itself, and might safely be made legal tender. Under the law, however, they are merely "lawful money" in the reserves of banks, so they serve as a basis for credit exactly as would a like amount of gold. The notes of the Bank of England, which represent for the most part gold deposited in the Bank, are a legal tender throughout the United Kingdom, it being assumed that the notes are a good title to gold actually in the Bank's possession.

The case is different with credit money unsecured by a deposit of real money, such, for instance, as our greenbacks and silver dollars. These are not titles to money deposited or to property of any kind; they are mere promises. To be sure, the government holds a gold reserve of $150,000,000 for redemption purposes, but this fund is only about one sixth of the outstanding greenbacks and silver dollars.[1] These are now legal tender and lawful money. Hence in the banks they may be made the basis for an expansion of bank credits amounting to four or five times their amount; in other words, to $4,000,000,000 or $5,000,000,000. Practically this is what has taken place, so that we have one credit system based upon another, the whole mass resting, like an inverted pyramid, upon a relatively slight foundation of gold.

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[1] The quantity of greenbacks in existence is estimated at $347,000,000; of silver dollars, about $492,000,000 (July 1, 1923).

A proposal to deprive any part of our fiduciary circulation of its legal-tender property would doubtless meet with no popular or political favor at the present time; yet if gold and gold certificates were the only form of lawful money, so that banks on demand could be compelled to redeem their note and deposit credits in gold, our monetary system would be much more secure than it now is. This radical change, however, should not be made unless provision has first been made for a safe and elastic bank-note circulation.

## Bank Credit Money

226. The bank note, which is a bank's promise to pay money to bearer, is bank credit money. Under the proper conditions of issue and redemption it is ideal credit money, — an inexpensive substitute for gold as hand-to-hand money and perfectly elastic in volume.

Unfortunately, as a practical matter, it is not always easy to determine what are the proper conditions of issue and redemption; hence the subject is a cause of much dispute and disagreement. In this chapter only certain general principles can be stated. A thorough discussion of the subject would be possible only in a complete treatise on banking.

Let us first notice the points of difference and resemblance between the bank note and bank deposit. (1) Both alike are the bank's debts, — its promises to pay money, — the note being payable to bearer, the deposit to an individual; and (2) both are redeemable on demand. Here we have the only points of resemblance. The points of difference are four: (1) The deposit gives rise to checks and drafts, an exchange medium of limited acceptability; whereas the notes possess general acceptability and pass current as money. (2) The deposit is a debt to an individual who voluntarily puts trust in the bank; whereas the note, since it passes current as money, often gets into the hands of persons who have no knowledge of the bank. (3) The so-called deposit currency, growing out of a deposit, i.e. checks and drafts, is negotiable and current, even to a limited degree, only after indorsement by the payee, and usually the indorsement is required of every person through whose hands it passes, so that this currency is a combination of bank and personal credit; whereas the bank note is pure bank credit, no indorsement by holders being required. (4) Bank checks and drafts, since they possess only limited acceptability, have a short life and do not get wide circulation, being promptly sent in for redemption; but bank notes, being easily passed on from hand to hand, are liable to remain long in circulation and to cover a broad field, holders preferring to pass them on rather than to bear the slight expense incident to redemption.

227. Because of these important differences it is generally admitted that banks should not be allowed the same freedom in the issue of notes that they enjoy in the creation of deposit liabilities. It may fairly be said that there is no dispute with regard to the necessity for the following general precautions: (1) that the maximum issue of notes permitted to a bank should at a given time be definitely fixed, it being possible to raise this limit when conditions warrant; (2) that certain special provisions should be made to secure the convertibility and redemption of bank notes.

With regard to the limit of issue advisable there is some difference of opinion. The usual practice is to limit the note issues to the amount of a bank's capital stock. In some countries, as in Germany, the limit is variable, being in proportion to the amount of money reserve. The note issues of the Bank of France have an arbitrary limit, formerly 5,000,000,000 fr.; but this limit was raised as the country grew and its need for currency increased, especially as a result of the World War.

## CONVERTIBILITY OF BANK NOTES

228. Of the various special provisions urged to secure the convertibility of bank notes the following are the most important: (1) that the notes constitute a first lien on the assets

of the bank; (2) that the stockholders in case of a bank failure be liable to an assessment equal to the par value of their stock, and that note holders have a first lien on the proceeds of such assessment; (3) that banks of issue maintain a common "safety fund," in the possession of the government, to be used if necessary in the redemption of the notes of any failed bank; (4) that banks shall deposit with the government bonds or stocks equal in value to the face value of the notes which they issue; (5) that banks be required to keep in reserve a stock of money equal to the amount of notes issued.

In weighing the merits of these measures we need keep only this one question in mind: Will this proposed provision interfere with the elasticity of the bank note? That is the test. If an affirmative answer is necessary, the measure should be rejected. For if bank notes are to be fixed in volume, not responsive to changing monetary needs, there is no good reason why their issue should be permitted. They would have all the faults of government credit money and their volume would not be so easily regulated.

Let us briefly examine the measures proposed. The first two would certainly have no hurtful effect. The depositor, since he is a voluntary creditor of a bank, cannot justly complain if a prior lien is given the note holder. The objection that depositors really have no choice, since men must use banks, does not hold, for banks of deposit which issue no notes exist in all countries, and others would be quickly organized should people show reluctance to deposit in note-issuing banks. Both these measures are part of the Canadian banking system.

The safety-fund provision is unobjectionable. That it is an effective measure is shown by the test of experience in the United States as well as by its present operation in Canada. From its use flows indirectly this important advantage: it makes the solvency of each bank a matter of pecuniary importance to all its competitors and stimulates among bankers an alert and beneficial scrutiny of all banking interests. Should a Canadian bank extend its credit to the point of hazard, it would quickly hear from its neighbors; and a speculating or immoral bank officer must dodge the eyes of all bank employees in the Dominion.

The requirement of a bond deposit, while it may provide an adequate security, introduces an investment element which effectually prevents banks from issuing notes in response to monetary needs. National banks in the United States have been issuing notes in accordance with this system ever since the Civil War, and their experience furnishes abundant evidence that notes thus issued perform no useful service. They are elastic enough, but their elasticity is perverse, even vicious, for they expand in volume when contraction is needed and contract when expansion is called for. In dull times, when the supply of currency is already excessive and the rate of discount low, banks are tempted to increase their investments in bonds and to enlarge their circulation. This is exactly what they did in 1894 and 1895, although the redundancy of the currency in those years, as will be shown in the next chapter, was causing gold exports that nearly bankrupted the national Treasury. On the other hand, in good times, when banks are able to lend all their credit at high rates of interest, they are prone, no matter what the need for currency, to reduce their circulation and sell their bonds in order to increase their money reserve.

The currency needs of the United States, for example, are some $100,000,000 larger in the autumn than in the summer. This increase is expected every year, and the cause of it — the harvesting and selling of the crops — is well understood, yet the national banks never on this account increase their issues of notes. A national bank which increases its circulation in September assumes an investment risk; it may have to sell the bonds in January at a lower price than it pays for them in September, and so may incur loss instead of profit. A second risk is involved, although this is not an essential fault of the bond-deposit requirement. The law places a limit upon the amount of national bank notes which may be retired in any one month by the deposit of lawful money with the Treasurer of the United States. This limit was originally fixed at $3,000,000, but in February, 1907, it was raised to $9,000,000. On account of this restriction upon the retirement of notes, a bank cannot always promptly recover possession of its deposited bonds when the condition of the government bond market makes the sale of bonds advisable.

The fifth measure, requiring a bank to hold a reserve of money equal to the amount of the notes issued, is in operation in the Bank of England. It destroys elasticity, and indeed was first recommended by a school of writers and bankers who argued that elasticity is not a desirable element in the currency. They are commonly known as the "currency school," their chief tenet being the theory that bank notes cannot be a harmless substitute for gold unless they represent, sovereign for sovereign, gold held in the vaults of the issuing bank. Bank notes thus secured are merely a warehouse receipt for gold and are not bank credit in any proper sense of the word.

## Two "Schools" of Banking

229. In the discussion prior to the Bank Act of 1844, which now regulates the operations of the Bank of England, the adherents of the currency school held the view that bank notes, unless merely representative of an equal amount of gold, inflated prices and led to speculation. They were opposed by adherents of the "banking school," who held that notes would not be issued to excess and would not inflate prices if bankers, unhampered by artificial restrictions, were left free to use their own judgment.

Banking experience in England and in the United States affords some justification for each of these opposite views. Prior to 1844 England had suffered from an unscientific issue of bank notes. As a heritage of the Restriction Period, briefly described in Chapter XIV, the notes of the Bank of England retained their legal-tender characteristic and were used as the reserve for note issues by innumerable small banks. Thus credit was based on credit. The one thing most essential to the soundness of a banking circulation, a system insuring swift and certain redemption, was entirely lacking. The Bank of England alone redeemed in gold. The small banks scattered their notes as widely as possible and, there being no redemption centers, were able to postpone payment and keep in circulation more notes than otherwise would have been possible; and when they did redeem their notes they did so in notes of the Bank of England. Undoubtedly bank notes issued under such conditions are a dangerous element in the currency of a country, and the view of the currency school was in that case justified.

But the adherents of the banking school had another situation in view, and they also were right. They held that if banks were compelled to redeem their notes in gold, and that if redemption were made easy and inexpensive, banks might be given perfect freedom of issue and yet not be able to issue notes in excess. That this view is essentially sound is proved to-day by the successful operation of the banks of Canada and the Bank of France, which are good illustrations of the so-called banking principle.

## EASE OF REDEMPTION NECESSARY

230. That ease of redemption is essential to sound banking circulation is a point too often ignored. No matter how adequately the notes are secured or how strictly their volume is limited, if the holder of a note cannot without friction or expense exchange it for money, it will be liable to remain in circulation after the need creating it has been satisfied, and so will induce inflation if not depreciation.

To secure ease of redemption and prevent inflation the following measures, some of them positive and some negative, are essential.

1. Banks should be obliged to redeem their notes in gold. This requirement would insure the presence of an abundance of money and its proper distribution throughout the country.

2. Banks should be required to redeem their notes not only over their own counters but in redemption centers conveniently situated in different parts of the country. In Canada, for

instance, a redemption center in each province is found sufficient. In the United States a dozen redemption centers would probably be necessary. Through its subtreasuries the government might do some of this work for the banks with less cost than it could be done by the banks.

3. Bank notes should possess no legal-tender quality and have no forced circulation. The government should be free to reject them, and no bank should be obliged to accept the notes of other banks. The notes should represent bank credit and should be current as such. To the extent that they are legal tender the motive impelling redemption is weakened.[1]

4. If a limit is placed upon the total issue permitted, it should be above the maximum attained at any season of the year; otherwise the banks would be debarred from satisfying extreme needs of the country for currency. Furthermore, it is not desirable that a bank should ever have in circulation all the notes it is permitted to issue, for then it might pay out the notes of other banks instead of sending them home for redemption, since it would be unable to replace them with its own. Any condition which impedes redemption must be avoided.

If bank notes were issued under these conditions and their ultimate convertibility were properly safeguarded, their volume would vary in most sensitive response to the needs of business and would never be in excess of these needs. An issue of such bank notes would not inflate prices; it would simply prevent a fall of prices. Any increase of confidence in a community which led to an increased use of credit of all kinds would naturally cause a rise of prices and so make room for more bank notes in the circulating medium; but the bank notes themselves would not cause the rise. Bank A would pay out its own notes when depositors asked for cash and would strive to keep as many out as possible; but all other banks, when their depositors turned in the notes of Bank A, would immediately send them to the latter for redemption, for each of the other banks would be seeking to get its own notes into circulation and to convert the notes of other banks into gold in order to strengthen its reserve.

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[1] National bank notes are legal tender in certain payments. The particulars are given on page 365.

Thus under this natural system of note issue two forces automatic and independent of law would continually be at work, the one tending to scatter bank notes over the land, the other drawing them surely and swiftly to their sources. Canada has a banking system very much like the one here outlined, and judged by results it is one of the best in the world. The smooth operation of that system should not, as is sometimes attempted, be ascribed merely to the wisdom and shrewdness of the bankers who administer it; the system is itself the father of the keen Canadian banker.

231. It is not necessary that the United States should imitate all the features of the Canadian system. Many reformers seem to think that the branch bank is an essential feature of the system, and so seek to have it incorporated in that of the United States.[1] This is a mistake. The branch bank has done good service in Canada and is always useful in a new and sparsely settled country, but the need for it in the United States is fast disappearing. At any rate it is not essential to a good system of bank notes. The essential thing is ease of redemption. Branch banks contribute toward this, but it can be attained without them if redemption agencies are properly distributed. In the United States these redemption agencies might be allowed the rights of a branch bank, but a general system of branches would not be necessary.[2]

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[1] In 1922 Canada had seventeen banks and there were over 4,600 branches.

[2] The reader should note that various classifications of credit money are possible. We have discussed convertible and inconvertible credit money, government and bank credit money, legal-tender and non-legal-tender credit money, also metallic and paper credit money. The classification depends entirely on the point of view; the principles underlying the value of credit money are the same no matter what the classification, and it is with principles that we are chiefly concerned. The following classification the reader may find helpful: (1) pure credit money, — that which is unsecured by a deposit of money, such as the Canadian bank notes; (2) representative money, — that which is secured by a deposit of an equal amount of money, such as the Bank of England notes and the gold certificates of the United States Treasury; and (3) token money, being credit money of small denominations and limited legal-tender power, such as silver half dollars,

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quarters, and dimes, and nickels and pennies. According to this classification the greenback and the silver dollar, being only partially secured by a deposit of money, would properly be classed as pure credit money. The national bank note is pure credit money, but since it is practically guaranteed by the government and is secured by a deposit of government bonds, it is more government credit than bank credit.

# CHAPTER XVI

## MONEY IN THE UNITED STATES

232. The period of bimetallism with gold undervalued at the mint, 1792 to 1834. (*a*) Why bimetallism was not maintained. (*b*) The loss of silver dollars through the operation of Gresham's law in the Orient. (*c*) The monetary confusion during the War of 1812. 233. Change of ratio in 1834 to 16 to 1, gold thereby becoming the standard. Gold coins were debased 6 per cent, but this did not mean a corresponding debasement of the standard. 234. Subsidiary silver coins debased in 1853 to prevent their exportation. 235. The act of 1873 suspending the free coinage of silver. 236. The unsuccessful experiment with trade dollars. 237. The "limping standard" from 1879 to 1890, legal-tender silver dollars being coined under the Bland-Allison Act. 238. The Bland-Allison dollar was an anomaly; it could be regarded either as fiat money or as implied credit money. 239. Why the act of 1878 disappointed the friends of silver. 240. Why the evils predicted by its opponents were not realized. 241. The issue of silver certificates was necessary because of the limited demand for silver dollars. 242. Why the act of 1878 resulted in the coinage of more than two million silver dollars per month. 243. Analysis of the monetary system as it existed in 1890. 244. The Sherman Act of 1890, ordering the purchase of 4,500,000 ounces of silver per month, contained the first legislative recognition of the silver dollar as credit money. 245. It failed to raise the price of silver or to increase the supply of currency; inflation caused exportation of gold. 246. Bond issues to protect the gold reserve made necessary in 1894, 1895, and 1896 by redundancy of the currency. 247. The greenback not primarily responsible for the operation of the "endless chain." 248. The national Treasury should not be permitted to inflate or contract the currency. 249. Leading provisions of the act of March 14, 1900, which explicitly declares the gold dollar to be the "standard unit of value." 250. Analysis of the currency supply of February 1, 1905.

232. It would be difficult to name any kind of money or credit money, whether bank note or government paper, with which the people of the United States have not had experience. It is the purpose of this chapter not to give the monetary history of this country in detail, but to sketch the evolution of our present system, dwelling at length only upon those changes or experiences which throw light upon fundamental principles. Our present monetary system is not the product of a carefully planned legal enactment; it has come to us as an inheritance

from the fathers of the republic, but so trimmed and amended by succeeding generations, to meet temporary exigencies, that its framers would not recognize it.

Our monetary history can for convenience be divided into five epochs: (1) 1792–1834, the period of bimetallism with gold undervalued at the mint; (2) 1834–1861, the period of bimetallism with silver undervalued; (3) 1862–1879, the greenback period; (4) 1879–1890, the period of the "limping standard"; (5) 1890 to date, the period of positive gold standard. We have already had occasion to refer to several important events marking these different periods, and in Chapter XIII have told the story of the greenback era in as much detail as space permits. In this chapter we will examine the salient features of the four remaining epochs.

## First Bimetallic Period

In 1792, in conformity with a plan drafted by Alexander Hamilton, the first Secretary of the Treasury, Congress adopted the dollar as the monetary unit, and provided that it should consist either of 371.25 grains of pure silver, or of 24.75 grains of pure gold. This was bimetallism at the ratio of 15 to 1, for both gold and silver coins were made legal tender and the free coinage of each was permitted. The monetary circulation at the time consisted of many different varieties of coin and bank notes. The most common silver coin was the old Spanish dollar; the most common gold coin, the English sovereign. Congress provided that these should be legal tender in proportion to the weight of pure metal they contained.

The law of 1792 did not yield actual bimetallism. It was soon discovered that gold had been undervalued in the law, and that gold coins in consequence would not remain in circulation. Silver was the real standard of prices. As explained in the chapter on bimetallism, it was impossible for the United States to maintain bimetallism at the ratio of 15 to 1 at the same time that France was freely coining the two metals at 15.5 to 1, for the French demand for gold, combined with the monetary and industrial demand of other nations, gave gold a market value above that of our coinage ratio.

Although silver was the monetary standard of this period, yet very few silver dollars were in circulation. Gresham's law, operating in other countries in a manner that could not have been foreseen, drew them away from the United States. The old Spanish dollar, which contained about seven grains more of silver than ours, was in general use in South America and the East Indies. When our new silver dollar appeared traders discovered that it passed by tale (that is, by count) in the East and in South America as the equal of a Spanish dollar. Consequently an opportunity for profit arose through the exchange of American for Spanish dollars. Bullion dealers shipped new American dollars to the Indies and received in return an equal number of Spanish dollars, which were sent to the United States Mint for coinage into American dollars. As each turnover resulted in an increase of the number of American dollars, which in their turn were exchanged for Spanish dollars, an endless chain was started which might have kept in motion until the lighter American coin had expelled the last Spanish dollar from the Orient. In 1806, however, President Jefferson broke the chain by the arbitrary suspension of the free coinage of silver dollars, no more being coined in this country until 1836.

Thus it happened that during this epoch (1792–1834) the American people were forced to use foreign coins almost exclusively. Subsidiary silver units, the free coinage of which was permitted, were the only American coins that remained in circulation. The inconvenience resulting from the heterogeneous character of the currency would have been much greater than it was but for the operation of the United States Bank, a semigovernmental institution chartered by Congress in 1791. Bank notes constituted the bulk of the country's circulating medium. These were secured by reserves of foreign gold and silver in the vaults of banks, and were redeemable in coin on demand. We cannot stop here to point out the beneficent effect of these bank-note issues. It is enough to say that the country at this time was saved from much annoyance, if not positive distress, by this most useful form of bank credit.

The War of 1812 threw the country for a time into a state of monetary disorder. The charter of the United States Bank expired in 1811, and was not renewed. The government, therefore, in the negotiation of loans was obliged to rely upon the assistance of state banks, and these institutions, free from the controlling influence of the federal bank, indulged in a riot of speculation which ended in their suspension of specie payments in 1814. The government itself was seriously embarrassed, and only the early termination of the war saved it from an issue of irredeemable legal-tender paper money, the fate of which would undoubtedly have been like that which subsequently befell the greenback. In 1816 a second Bank of the United States was chartered, the operations of which brought the country back to a specie basis in 1819.

The suspension of specie payments during and after the War of 1812 cannot be said to have resulted in the adoption of a fiat standard. Many different kinds of bank notes were in circulation, and at many different rates of discount, but none of them became the accepted standard of prices. The metal standard was in no sense abandoned by the people; it was ever present in their calculations, and their estimate of the value of a bank note was based almost wholly upon its redemption prospects. If the government had issued legal-tender Treasury notes, it is quite probable that these would have become the standard, just as the greenback did after 1861; but such notes were not issued, and among the heterogeneous mass of bank notes no possible substitute for the metal standard, possessing acceptability throughout the entire country, could be found.[1]

From the resumption of specie payments after the War of 1812 until 1834 the country was upon the silver standard, although the basis was nominally bimetallic.

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[1] Under five different acts of Congress, Treasury notes amounting to $36,000,000 were issued, but most of these bore interest and none were legal tender. They were utilized by the banks as a basis for note issues, but as a medium of exchange they had practically no circulation.

## Second Bimetallic Period

233. By acts of Congress in 1834 and 1837 the coinage ratio of silver and gold was changed from 15 to 1, to 16 to 1. The country, as a result, passed from the silver to the gold standard, for the new ratio undervalued silver as much as the old ratio had gold. Various circumstances were responsible for this change. Our largest trade connections at the time were with Great Britain. From that country, also, we were drawing the capital needed for the development of our natural resources. The English sovereign meant a definite quantity of gold, and there was a growing belief in this country that the financial and commercial supremacy of England was in large measure attributable to its maintenance of the gold standard. On account of our financial and commercial relations with England it seemed desirable that both countries should be upon the same money basis. The discovery of gold mines in South Carolina, the owners of which wished to make a better market for gold bullion, also seems to have had some effect upon Congress.

The change of ratio was effected by a debasement of the gold dollar, the amount of pure gold in it being reduced from 24.75 to 23.22 grains. This change, it will be seen, made the silver dollar of 371.25 grains 16 times heavier than the gold dollar.[1] At the same time the present standard of fineness (nine tenths) was adopted for both gold and silver coins.

This debasement of the gold coins by 6 per cent did not mean a corresponding debasement of the standard. Just prior to the change of ratio in 1834 the prices of goods represented the purchasing power of 371.25 grains of pure silver. In the current silver money 24.75 grains of pure gold were worth $1.03, a rate of exchange which made 23.22 grains of pure gold (the new gold dollar) equal to about 97 cents in silver. The real depreciation of the standard, therefore, was only about 3 per cent. Logically this should have caused a corresponding rise in the prices of commodities, but as a matter of fact its

[1] The exact ratio is 15.9884 to 1.

effect was not noticeable. This is explained by the fact that gold and silver were steadily increasing in value at the time, the annual output of the world's mines being very small, so that the 3 per cent depreciation of the dollar, instead of causing a rise of prices, merely checked for a time the downward tendency.

The monetary system established by the legislation of 1834–1837 continued in force until 1861, gold throughout this period being the real standard of prices. The country soon possessed an abundance of gold coin. Silver dollars were coined to some extent, but most of them were melted or exported.

234. The new situation was not without its inconveniences. Not only were silver dollars worth more as bullion than as coin, but all the smaller silver coins likewise had a higher value as bullion than as money. Under the law of 1792 two silver half dollars, four quarters, or ten dimes contained as much silver as a dollar. As the law of 1834 made no change in the constituent elements of subsidiary coins, it became profitable to export all of these that were full weight. Thus a scarcity of small change arose, only worn and light-weight coins remaining in circulation. In order to remedy this state of affairs Congress in 1853 passed a law changing the character of subsidiary silver coins. Before this date the free coinage of these had been permitted, and they had possessed full legal-tender power, creditors being obliged to accept them to any amount. By the act of 1853 the amount of metal in all fractional silver coins was reduced about 7½ per cent, the half dollar being reduced from 185.625 grains pure silver to 172.8 grains, and smaller coins in the same proportion. The law also provided that these coins should be minted only on government account, freedom of coinage being thus suspended; and that they should be legal tender for not more than $5.00. This change made the ratio between silver and gold 14.88 to 1, whereas the market ratio at the time was 15.23 to 1. The law accomplished the purpose desired. As small silver coins thereafter possessed a value as money in excess of their value as bullion, it was unprofitable to melt or export them. The fractional silver now in use is of the weight and fineness

provided by the act of 1853. Prior to 1853 subsidiary silver coins were standard money; since that date they have been mere credit or token money.

As a result of the act of 1853 the United States, for the first time in its history, was supplied with an abundance of small silver coins of its own minting. Accordingly in 1857 Congress repealed all laws giving a legal-tender quality to foreign silver coins.

## Law of 1873

235. The next change in our coinage law was made in 1873. At this time, as already shown, the country was upon a fiat-money basis, but the dominant sentiment favored a return to specie payment; and since all the business of the country had been done upon a gold basis for two generations, few silver dollars having been in circulation, a rather strong sentiment in favor of the gold standard existed. The question of standards excited little popular interest in this country, but in Europe it had been for some time a matter of general discussion. At an international monetary conference in Paris in 1867, held ostensibly for the purpose of securing monetary uniformity among the leading nations of the world, bimetallism had proved a stumbling-block, the prevailing opinion being in favor of the single gold standard. Accordingly no opposition was excited in this country when our Secretary of the Treasury presented to Congress a bill for the revision of our coinage laws, in which all silver coins were made legal tender for only $5.00, the monetary unit being declared to be the gold dollar of 23.22 grains fine. The bill was prepared by Mr. John J. Knox, Comptroller of the Currency, and sent to Congress in 1870. By most congressmen and by the public generally it was regarded merely as a revision or codification of existing coinage laws. Gold was not the money of the time. People were buying and selling goods with greenbacks, and the average man was interested only in legislation which affected the standing of the greenback. The bill, therefore, although the subject of some debate in Congress, aroused no general

interest and passed both houses practically without opposition, becoming a law February 12, 1873. The law as passed made no mention whatever of the silver dollar ; instead of specifically prohibiting its free coinage, the law simply failed to include it among the coins which might be minted. Thus the United States from a condition of legal bimetallism passed to a condition of legal monometallism, which became actual in 1879.

236. The act of 1873, although it suspended the free coinage of a legal-tender silver dollar, provided for the free coinage of a silver coin known as the "trade dollar," to contain 420 grains of standard silver and to be legal tender for $5.00. This dollar was intended for use in our trade with the Orient, and was worth at the time about four cents more than a gold dollar. The decline in the gold price of silver, which began in 1873, produced results not contemplated by the framers of the act, for the conversion of silver bullion into trade dollars soon became a profitable business. Instead of going to the Orient, they remained at home, people being compelled to accept them in payments not exceeding $5.00. In 1876 Congress deprived them altogether of their legal-tender quality and gave the Secretary of the Treasury authority to restrict their coinage. In 1887 Congress provided for their redemption at par in standard silver dollars. The total coinage was $36,000,000, but only $7,700,000 were presented for redemption.

### "Limping Standard" (1879–1890)

237. Under the terms of the coinage act of 1873, which made the gold dollar the unit of price in the United States, the resumption of specie payments in 1879 meant the adoption of the single gold standard. The word "dollar" thereafter was to mean 25.8 grains of standard gold, and under the law the word "specie" could be interpreted only as meaning gold. Silver was no longer a money metal, and no silver dollars were to be coined.

In 1878, however, a few months before the resumption of specie payments, Congress passed a bill, commonly known as the Bland-Allison Act, which threw some doubt upon the nature of our monetary unit. This act, which was a compromise with the advocates of the free coinage of silver, provided for the monthly purchase of between $2,000,000 and $4,000,000 worth of silver bullion, and its coinage into dollars of 412½ grains standard. In the act these dollars were called "standard silver dollars," and were declared legal tender for all debts, public and private, principal and interest of government bonds excepted. The law remained in force until July 14, 1890, the total coinage of silver dollars amounting to $378,166,793. For the first time in the country's history there was an abundance of silver dollars in circulation. Indeed, after a few years it was found impossible to get the fresh supplies into circulation, the country's need for currency in the form of a silver dollar being satisfied during the eighties with less than $60,000,000.

238. The Bland-Allison silver dollar was a monetary anomaly. Although called a standard silver dollar to propitiate the friends of silver, it was in no sense standard money; nor was it recognized as credit money, for no provision whatever was made for its redemption in gold. Its status was very much like that of the Indian rupee after 1898, — theoretically and legally fiat money, susceptible of depreciation if issued to excess; but practically credit money, the people having confidence that somehow it would be kept at par with gold. Inasmuch as the law made it legal tender, the people certainly had a right to expect that the government would keep it equal in value to gold. There was no direct promise to pay gold, but the implied obligation was tantamount to an explicit declaration. Two things were essential to the maintenance of its value: first, limitation of the supply; and second, confidence among the people in the purpose and ability of the government to prevent its depreciation. These two conditions were necessarily intertwined. Theoretically the supply of silver dollars might increase until all the country's gold had been displaced, and no depreciation result, for there would be no increase in the supply of currency; but such an increase would have destroyed confidence in the ability of the government to redeem silver dollars, and so

would have led to depreciation, the country thereby passing from a gold standard to a fiat standard.

Our monetary system at this time, being neither bimetallic nor explicitly monometallic, was said to be upon a "limping standard." This expression was borrowed from Germany, which at the time was in a similar position. When Germany adopted the gold standard in 1871, with the mark as the monetary unit, some 300,000,000 silver thalers were in existence. Over one half of these were sold as bullion before 1879, when sales were suspended on account of the decline in silver. Over 100,000,000 are still in existence and have legal-tender power as the equivalent of three marks, although not legally redeemable. France also had, and still has, the "limping standard." The silver five-franc pieces are legal tender for all debts, but are not legally redeemable in gold. The Bank of France has the right to pay them out in redemption of its notes. Nevertheless, in France, as in Germany, gold is the real standard of prices. The United States, as we shall see later, has definitely, by legal enactment, placed itself upon a gold basis, but Germany and France are still, theoretically, on the "limping standard."

239. The act of 1878 failed to accomplish any of the purposes desired by the friends of silver. It did not increase the money supply, it had little effect on the value of silver, and it did not check the fall of prices. The notion that it would increase the money supply seems to have been commonly held, yet any such effect was impossible so long as any gold coin remained in circulation. *Every silver dollar put into circulation after 1878 merely took the place that would have been filled by a gold dollar had no silver dollars been coined.* The demand for currency in the United States greatly increased between 1878 and 1890. If this demand had not been met by the coinage of 378,000,000 silver dollars, gold would have been imported in larger quantities, and in place of an abundance of silver we should have had an abundance of gold. Our exports of merchandise would have been larger, and possibly our imports might have been smaller. The gold standard, in short, would have been firmly established. The law of 1878 made our

supply of money — that is, gold — less than it otherwise would have been, and had very little effect upon the total supply of currency.

Nor did this law of 1878 affect the value of silver bullion as a free coinage act would have done. It was in no sense a remonetization of silver. It gave to the metal no money utility and did not increase the general demand for it. Free coinage would have done that, but the limited coinage of silver dollars, which merely made the metal the material for credit money, tended to raise its value only in so far as it reduced the available market supply. The gold price of silver in 1878 was $1.15. It averaged 4 cents lower in 1879, then rose to $1.14 in 1880, and thereafter declined steadily to 93 cents in 1889. This decline of the gold price, as shown in a previous chapter, was due to a rise in the value of gold rather than to a fall in the value of silver.

There was a popular notion that the Bland-Allison Act, by increasing the supply of "money," would check the downward tendency of prices. This idea had no foundation in reason. As we have seen, the act could not have led to an increase in the supply either of money or of other currency so long as gold remained the standard. Prices varied inversely with the value of gold, and that was fixed by world forces upon which an act of Congress could exert very little influence. The coinage of $30,000,000 in silver every year lessened this country's need for gold by that amount and so was a credit influence tending to cheapen gold and raise prices; but it was slight and ineffective in comparison with all the world influences acting upon the demand for and supply of gold.

240. The opponents of the act of 1878 predicted dire consequences, — inflation, gold exports, panic, and a change to the silver standard. Fortunately, however, the coinage of Bland-Allison dollars was begun at a time when the need for currency was greatly increasing, and the predicted evils did not materialize. The year 1879 marked the end of the depression following the panic of 1873, and the beginning of a period of great industrial activity. During the next eleven years eighty thousand

miles of new railroad doubled the country's mileage. Despite the monthly outflow of silver dollars from the United States Mint, the demand for currency easily absorbed them all, and, in addition, led to large imports of gold. During the ten years following 1878 the net imports of gold into this country amounted to $224,000,000. In only two years, 1884 and 1886, were the exports in excess of the imports. At the same time this country was producing annually about $60,000,000 worth of gold, of which at least 80 per cent was added to the money supply. According to estimates made by the Director of the Mint, the monetary stock of gold in the United States increased from $230,000,000 in 1879 to $690,000,000 in 1890. During the same period 378,000,000 new silver dollars were coined. This growth in the monetary stock was offset to some extent by a decline in the quantity of national bank notes from $323,000,000 in 1878 to $186,000,000 in 1890, the improved credit of the nation having raised the prices of government bonds to figures which tempted the banks to reduce their circulation to the lowest possible limits. The net increase of the currency in circulation between 1878 and 1890 was about $600,000,000, or nearly 80 per cent.

241. All this addition to the country's monetary stock was absorbed by the increasing demand for currency, but not without difficulty. It was very soon discovered that the public had no use for silver dollars beyond a limited amount.[1] The law of 1878 had provided for the issue of silver certificates against the deposit of silver dollars, no certificate to be of a denomination under $10. Of these certificates $88,000,000 were in circulation in 1886, but they were not very much liked by the banks, for according to the law of July 12, 1882, they were not legal tender, although they were receivable in payment of all dues to the government and could be counted by national banks as part of their "lawful money" reserves.

In order to popularize silver certificates Congress provided by act of August 4, 1886, for their issue in denominations of

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[1] In 1884 only 40,000,000 silver dollars were in circulation. By 1901 the number had increased to 70,000,000.

$1.00, $2.00, and $5.00. As the national banks were not allowed to issue bank notes of small denominations, and as the Secretary of the Treasury adopted the policy of retaining all greenbacks of small denominations, the silver certificate necessarily became the pocket money of the people, and their volume rapidly increased, rising to $142,000,000 in 1887 and $297,000,000 in 1890. These certificates are promises to pay silver dollars to the bearer, and are issued only against the deposit of silver dollars. Only by their issue was the government able to utilize the silver dollars coined under the act of 1878.

242. The act of 1878 necessarily resulted in the coinage of more than 2,000,000 dollars per month. It required the purchase of at least $2,000,000 worth of silver; and since the price of this metal throughout this period was less than $1.29 per ounce, $2,000,000 worth was sufficient to coin considerably more than 2,000,000 dollars.[1] In 1883, for example, the average price of silver per ounce was $1.11. At this price the government with $2,000,000 could buy enough silver to make 2,325,000 dollars. The apparent profit made has been improperly called a seigniorage. The total cost of the silver bullion purchased under the act of 1878 was $308,000,000. It amounted to 291,000,000 ounces, or sufficient to coin $378,000,000. The so-called profit, or seigniorage, therefore, was $70,000,000. This sum, however, was not a profit or gain, and cannot properly be called a seigniorage. This latter word is applicable only in the case of a metal freely coined, when it implies the assumption of no debt or obligation on the part of the government. These silver dollars constitute a government debt as truly as does the greenback. In 1890 the government was under obligation to maintain at par with gold 378,000,000 silver dollars, just as it was to maintain the parity of $346,000,000 in greenbacks. Both were government debts, the only difference being that in the case of one the promise to pay was expressed, while in the other it was implied. In 1890 the value of the bullion contained in the silver dollars, the market

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[1] No Secretary of the Treasury ever bought more than the minimum amount prescribed by the law.

price of silver being $1.04, was $302,000,000. If it is granted that the government could have sold this bullion at the market price, although such a sale could not have been made, the government's net debt on account of these silver dollars was at that time $76,000,000. At the price of silver prevailing in 1903 (about 53 cents), the government's net debt on account of the 378,000,000 Bland-Allison dollars was about $225,000,000. It is evidently wrong to speak of the difference between the bullion and the coinage value of silver dollars as a profit.

243. Before describing the legislation of 1890 let us briefly analyze the monetary system of the United States as it existed in the beginning of that year. The supply of currency or "money," as estimated by the Secretary of the Treasury, was as follows:

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|---|---|
| Gold coin and bullion | $695,000,000 |
| Silver dollars | 386,000,000 |
| Subsidiary silver | 76,000,000 |
| National bank notes | 186,000,000 |
| Greenbacks | 347,000,000 |
| Total | $1,690,000,000 |

Of the gold, $177,000,000 belonged to the Treasury and was known as "free gold," to distinguish it from the gold which had been deposited in the Treasury against the issue of gold certificates. This free gold was known as the "gold reserve" for the redemption of greenbacks. No law prescribed a minimum below which this reserve must not fall, but custom had fixed the figure at $100,000,000. The only law in any way referring to the matter was passed in 1882; it directed the Secretary to suspend the issue of gold certificates when the free gold in the Treasury fell below $100,000,000. Thus Congress expressed its opinion that the gold reserve should not be less than $100,000,000. Gold certificates, the issue of which against deposits of gold was authorized by act of Congress in 1863, were a convenient paper representative of gold, a sort of warehouse receipt. They were popular with bankers, being more easily stored and counted in banking reserves than gold coin. A suspension of their issue, it was hoped, would lead to a larger use of greenbacks by bankers, so that fewer of these would be taken to the Treasury for redemption. The vicissitudes of this gold reserve became, as we shall see, a very important matter before the end of the century.

Of the 386,000,000 silver dollars, 8,000,000 had been coined out of the old "trade dollars" and 378,000,000 out of silver bought under the act of 1878. These silver dollars were not redeemable in gold. The law declared them standard dollars.

The national bank notes were redeemable in "lawful money," which included greenbacks, silver and silver certificates, and gold and gold certificates. The bank notes were secured by government bonds deposited at the Treasury, a national bank being then permitted to issue notes equal in amount to 90 per cent of the par value of the bonds it deposited.

## SHERMAN ACT OF 1890

244. The nonfulfillment of the pessimistic prophecies of the gold or so-called "sound money" men encouraged the friends of silver to demand more legislation, and in 1890 (July 14) a second silver-purchase law was enacted. Like the act of 1878, this was a compromise between the "sound money" men and the advocates of free coinage. It is generally known as the Sherman Act, John Sherman having been chairman of the Senate committee by which it was drafted. It ordered the Secretary of the Treasury to purchase monthly 4,500,000 ounces of silver at the market price, and to pay therefor by the issue of new Treasury notes, legal tender and redeemable in coin; the purchases to cease whenever the market price equaled $1.29 per ounce, the price at which the ratio of silver to gold is 16 to 1. The silver bullion purchased was to be stored in the Treasury as a sort of reserve or security for Treasury notes. This act remained in force until July, 1893, and under it the government purchased 169,000,000 ounces of silver at a cost of $156,000,000. It provided for the coinage of 2,000,000 ounces of silver per month until July 1, 1891, and for such further

coinage thereafter as might be necessary for the redemption of the Treasury notes.

The new Treasury notes were made redeemable on demand in either gold or silver coin, at the discretion of the Secretary of the Treasury. To increase their acceptability the following important clause was inserted:

> . . . it being the established policy of the United States to maintain the two metals on a parity with each other upon the present legal ratio, or such ratio as may be provided by law.

This so-called "parity clause" was the first legislative recognition of the silver dollar as credit money for the value of which the government was responsible. The act as a whole threatened the subversion of the gold standard; yet this parity clause was an important move toward the more secure establishment of that standard. In the troublous times that followed no Secretary refused to redeem the Sherman notes in gold. They were treated as the equal of greenbacks.

245. The Sherman Act was confidently expected to "do something" for silver, for the purchases it ordered would absorb nearly the whole silver output of the United States. These expectations were doomed to disappointment. There was a brief speculative boom in silver in 1890, the price rising from $1.04 per ounce July 1 to $1.21 September 3; but then it steadily declined, the average price in 1891 being 98 cents and in 1892 87 cents.

It was also expected that the Sherman Act would exert a beneficial influence upon business and industry. It seemed to promise more money, high prices, better times. Mr. Windom, Secretary of the Treasury, expressed a quite common opinion when he wrote in his annual report for 1890: "One thing is certain, that it has been the means of providing a healthy and much-needed addition to the circulating medium of the United States."

The act, however, soon brought disaster. During the next three years $156,000,000 new credit money was issued, but events showed that it was not needed, for an equal amount of gold was crowded out of circulation and exported to foreign countries. During the first six months of 1891 our gold exports amounted to $74,000,000. The bountiful harvests of that year, resulting in large exports of grain, turned the foreign exchanges in our favor during the latter half of the year, but in 1892 gold exports were renewed and the amount of free gold in the Treasury rapidly declined. By April, 1893, the gold reserve had dwindled to $97,000,000. The situation gave rise to much alarm among business men, for the fear was felt that the government might not be able to continue the redemption of the greenbacks and Sherman notes. This fear, which was felt in Europe as well as in the United States, precipitated the disastrous panic of 1893. In the midst of that panic President Cleveland called a special session of Congress. It met August 7, and after much debate in the Senate a bill was passed (October 30) repealing the silver-purchase provisions of the Sherman Act. The parity clause was not repealed, but was reiterated with emphasis, although linked with a declaration in favor of international bimetallism.

246. The evil effects of the Sherman Act, and of the resulting inflation, did not end with the panic of 1893. During the next three years the industries of this country were numb, as with paralysis, and the demand for money was in consequence greatly reduced. Redundant cash, accumulating in the vaults of the city banks, stimulated unhealthy speculation in our stock and produce markets, and thus, by raising our price level above that of Europe, caused a steady export movement of gold. The operations of the Treasury, from which the gold was taken, tended to accelerate the movement, for its receipts from customs and internal revenue were less than its expenditures. The Secretary of the Treasury, although embarrassed by the inflation of the currency, was himself obliged to contribute to it, for the situation compelled him each month to pay out more currency than he took in. In January, 1894, the gold reserve had shrunk to $65,000,000, and the total cash balance of the Treasury, including this gold reserve, amounted to only $84,000,000. The Secretary of the Treasury appealed to Congress

for power to issue bonds, but Congress declined to give assistance. Accordingly, under authority conferred by the Resumption Act of 1875, the Secretary of the Treasury, in January, 1894, advertised for sale $50,000,000 5 per cent bonds maturing in ten years. The price was fixed at 117.223, which made the interest rate equal to 3 per cent. The bonds were taken mainly by the banks of New York City, the proceeds amounting to $58,189,500. The gold reserve was thereby raised to $107,000,000.

This bond issue, however, could not counteract the forces that were compelling the exportation of gold. On account of the deficit the Treasury continued to inflate the currency; gold exports were continued, and the Treasury gold holdings rapidly reduced. In August the gold reserve amounted to only $52,000,000. A second bond issue for $50,000,000, sold at 117.077, brought the gold reserve up to $105,000,000 in November. This issue had a bad effect upon the public, giving rise to the impression that the Treasury was in distress and might not be able to maintain gold payments. As a result timorous people began to withdraw gold from the Treasury by the redemption of greenbacks, not because they needed gold for export, but because they feared national bankruptcy. In the last three months of 1894 the Treasury lost $80,000,000 in gold, although less than half this sum was exported.

In January, 1895, the reserve having shrunk to $44,700,000, the Secretary arranged for a third issue of bonds. The previous issues had been sold after public advertisement. The third issue, however, was made under a forgotten clause of the *Revised Statutes* (Section 3700), which gave the Secretary authority to sell bonds upon such terms as he should deem most advantageous to the public interest. Under this section, in January, 1895, he entered into a contract with a syndicate of bankers, according to the terms of which it was agreed: (1) that the syndicate should deliver $65,117,500 in gold (3,500,000 ounces); (2) that one half of this gold should be brought from Europe at the rate of 300,000 ounces per month; (3) that for six months the syndicate should use all its influence to prevent the withdrawal of gold from the Treasury; (4) that the gold should be paid for with 4 per cent thirty-year bonds at 104.49. The low price paid for the bonds has subjected this contract to much criticism, but the contract appears to have been justified by the exigency. The syndicate accomplished all that was asked of it. Through the coöperation of foreign bankers, who were interested in the syndicate, the rate of foreign exchange was for six months kept below the gold export point, the gold reserve of the Treasury was raised above $100,000,000, the exportation of gold ceased for several months, and public alarm was quieted.

The syndicate was not held to its agreement to import part of the gold. This was wise, for the real though not ostensible purpose of the bond issue was to contract the supply of currency in this country; if the syndicate had imported the gold from Europe and paid it over to the Treasury, no contraction of our money supply would have resulted, and there would have been strong pressure for the reëxportation of the metal.

Gold exports were not resumed until August, 1895, and by December the gold reserve had fallen to $79,000,000. In this month President Cleveland's message regarding the boundary line between Venezuela and British Guiana, which seemed to breathe a threat of war against Great Britain, threw Wall Street into a panic, and large withdrawals of gold from the Treasury ensued. In January, 1896, the gold reserve having fallen to $49,000,000, the Secretary of the Treasury sold $100,000,000 4 per cent thirty-year bonds at an average price of 111.166. Exports of gold did not cease until August, but the reserve did not again fall below $100,000,000.

A summary review of the events following the passage of the Sherman Act in 1890 will be found instructive. The act led to the issue of $156,000,000 new Treasury notes within three years, and to the exportation of $160,000,000 worth of gold in the same period. In 1893, therefore, the country held at least $150,000,000 less gold than it would have had if the Sherman Act had not been passed; the gold reserve, while the act was in force, declined from $184,000,000 to $84,000,000 (October, 1893). The depression following the panic of 1893 was accompanied by a shrinkage in the need for currency, while at the same time continuous inflation was resulting from the Treasury deficit, the excess of expenditures from July 1, 1893, to December 1, 1895, amounting to $130,000,000. Continuous inflation gave rise to a continuous demand for gold for export. The Treasury, having lost most of its gold during the preceding three years, was obliged within three years to add $262,000,000 to the funded debt, receiving in cash thereby $293,000,000. During the six years 1890 to 1896 the country's net imports of gold amounted to $269,000,000, and the total exports of gold to $497,000,000.

247. While the Treasury was going through this exciting time the greenback was quite generally held responsible for all the mischief. Greenbacks were the agents used for the withdrawal of gold from the Treasury, and as the Secretary was forced to pay them out as fast as they were redeemed, the same greenbacks were presented over and over again for redemption. What was called an "endless chain" of greenbacks passed into and out of the Treasury, carrying gold with it. In consequence a strong sentiment was created in favor of the permanent retirement of the greenback, and an agitation having this object in view was accordingly begun.

The greenback, however, was not the real cause of the Treasury's embarrassment during this period. The force which kept this endless chain in motion was inflation, (1) from the issue of Sherman notes and (2) from the Treasury deficit. The most important lesson to be learned from the events of this period is this: that an artificial increase of the currency of a country, from whatever source, is always liable to cause an exportation of gold. Even if the greenbacks at this period had not been in existence, or if they had not been redeemable in gold on demand, there would have arisen the same demand for gold for export, and if it had not been supplied by the Treasury, it would have been bought at a premium in open market. In other words, if there had been no greenbacks, and if the government had refused to give gold in exchange for silver dollars, depreciation of our credit money would have resulted.

248. Another lesson taught by these events relates to the management of the Treasury. Its operations should never have been permitted, unless for good reasons, to increase or diminish the country's supply of currency. When the receipts were less than the expenditures, the deficit should have been covered instantly by a sale of bonds. If the Treasury at such a time had money on deposit in the national banks, no bond sales would be necessary, but these deposits should be reduced by an amount equal to the deficit. If the Secretary of the Treasury had sold bonds in 1894 whenever the rates of foreign exchange approached the gold-export point, he would have corrected the redundancy of the circulation and rendered the export of gold unnecessary. It would not have been necessary that the bonds should be paid for in gold. The gold movement was the result of an excess of currency; a permanent reduction of any part of the supply, whether gold, silver, or greenbacks, would have checked the movement; but a temporary reduction, followed again by inflation, could do no good.

Whenever the Treasury receipts exceeded the expenditures, so that a surplus was accumulating, an artificial contraction of the country's currency resulted. In order to avoid this evil the Secretary of the Treasury could increase the deposits of public moneys in the national banks.

## LAW OF MARCH 14, 1900

249. The presidential campaign of 1896, although it resulted in a victory for the friends of the gold standard, disclosed the startling fact that nearly one half of the people of the United States were in favor of the free and unlimited coinage of silver dollars. The friends of the gold standard, therefore, resolved not to rest until it had been firmly and explicitly established in the law. In 1897 representative bankers and business men held a convention in Indianapolis and appointed a commission to consider plans for the improvement of the monetary system. A bill prepared by this commission was laid before Congress in 1898.

It provided for a freer issue of bank notes, for the gradual retirement of the greenback and Sherman notes, and for the direct redemption of silver dollars in gold. Congress did not pass this bill, but drafted one of its own, which became a law March 14, 1900.

The law of 1873 made 25.8 grains of standard gold the legal monetary unit of the United States, and the Resumption Act of 1875 provided for the practical adoption of this unit in 1879. We have seen, however, that the full realization of the gold standard in 1879 was prevented by the coinage of fiat silver dollars under the Bland-Allison Act of 1878. For twelve years the country was upon a "limping standard," — a joint standard of gold and fiat money; yet the price level was determined by the value of the gold dollar, for depreciation of the fiat silver dollars was prevented by limitation of their supply and by the increasing demand for currency.

The Sherman Act of 1890 both strengthened and weakened the gold standard ; it made the silver dollar credit money to be maintained at par with gold, but at the same time it ordered larger purchases of silver and further inflation. During the next six years the gold standard was several times near dissolution, but the presidential campaign of 1896 ended in a triumph for its friends, and immediately a thorough discussion of plans for its safeguarding began.

The outcome of this discussion was the so-called Gold Standard Act of March 14, 1900. The full text of this law is printed in the Appendix. Its most important provisions are the following.

1. The gold dollar shall be the "standard unit of value," and it shall be the duty of the Secretary of the Treasury to maintain "all forms of money coined or issued by the United States" at a parity of value with this standard.

2. United States notes and Treasury notes of 1890 shall be redeemed in gold coin, and such notes when redeemed shall not be reissued except in exchange for gold.

3. The Secretary of the Treasury shall maintain a reserve fund of $150,000,000, and whenever the gold in this fund falls under $100,000,000 he shall "restore the same to the maximum

sum of $150,000,000" by the sale of bonds. When notes are taken from the reserve fund in exchange for gold thus obtained, the Secretary may use them for any lawful purpose, "except that they shall not be used to meet deficiencies in the current revenues."

4. There shall be established in the Treasury Department a division of issue and a division of redemption, in which shall be kept the accounts relating to the issue and redemption of United States notes, Treasury notes, gold certificates, silver certificates, and currency certificates; the funds representing these accounts to be held as trust funds.

5. The Treasury notes of 1890 shall be retired and canceled by the substitution therefor of silver certificates as fast as the silver bullion bought under the act of 1890 is coined.

6. Silver certificates shall, for the most part, be in small denominations ($10 and less), and greenbacks in large denominations ($10 and upward).

7. The following United States bonds, the 5's of 1904, 4's of 1907, and 3's of 1908, may be exchanged for new 2 per cent bonds payable in gold after thirty years.

8. National banks may issue notes equal in amount to the par value of the bonds deposited as security, and the tax on the notes issued against the deposit of 2 per cent bonds shall be only ½ of 1 per cent per annum.

The act expressly declares that greenbacks and Treasury notes shall be redeemed in gold coin. Until 1890 the greenback had been a coin obligation and was legally redeemable in either silver or gold. The law of 1890, while leaving it still a coin obligation, had made its redemption in gold compulsory whenever such redemption was necessary to maintain its parity with gold.

Elaborate provision is made to enable the Secretary to maintain the gold redemption of the greenback. The gold reserve is raised from $100,000,000 to $150,000,000, but one third of this fund may consist of greenbacks which have been redeemed. Whenever the gold in the fund falls below $100,000,000, and cannot be increased by exchanges of greenbacks for gold in the general fund of the Treasury, the Secretary must obtain gold by the sale of bonds. He is left without discretion in the matter. When the gold fund is depleted bonds must be sold.

The establishment of the division of issue and redemption was important only from the bookkeeper's point of view, and is an imitation of the organization of the Bank of England.

The restriction of the issue of silver certificates to small denominations was intended to make these the pocket money of the people, and such has been the result. Since the law was passed almost all the Treasury notes of 1890 have been retired, silver certificates having taken their place. The Revenue Act of 1898, passed when this country was at war with Spain, authorized the coinage of the silver bullion bought under the act of 1890. The silver certificates that have supplanted the Treasury notes of 1890 represent the dollars which have been coined from this bullion.

250. The following table shows the different kinds of currency in the United States.

### CURRENCY SUPPLY OF THE UNITED STATES, JULY 1, 1923

(In Millions of Dollars)

| | OUTSIDE THE TREASURY | IN TREASURY (Belonging to it) | IN TREASURY (In trust) | TOTALS |
|---|---|---|---|---|
| Gold coin and bullion | 686 | 341 | 3022 | 4049 |
| Gold certificates | 737 | —— | —— | 737 |
| Silver dollars | 66 | 12 | 413 | 491 |
| Silver certificates | 412 | —— | —— | 412 |
| Subsidiary silver | 257 | 12 | —— | 269 |
| U. S. notes (greenbacks) | 346 | 1 | —— | 347 |
| Treasury notes of 1890 | 1 | —— | —— | 1 |
| National bank notes | 733 | 14 | —— | 747 |
| Federal reserve notes | 2697 [1] | 2 | —— | 2699 [2] |
| Totals | 5935 | 382 | 3435 | 9752 [2] |

| | |
|---|---|
| Total money (gold) | $4,049,000,000 |
| Total credit money [2]. | 4,703,000,000 |
| Total currency [2]. | $9,752,000,000 |

[1] Includes federal reserve bank notes.

[2] Includes $1,149,000,000 of gold or silver certificates. These are merely representatives of coin or bullion held in trust by the government.

The bullion included under "gold coin and bullion" consisted chiefly of bars of varying degrees of fineness, which are made by the mint for the convenience of jewelers and gold exporters. Of the $341,000,000 in gold belonging to the Treasury, $153,000,000 was held in the reserve fund for the redemption of greenbacks and maintenance of the gold standard; the remainder was part of the Treasury's general cash balance.

The gold certificates ($737,000,000) are paper representatives of gold, either coin or bullion, which the Treasury holds in trust. That gold belongs to the holders of these certificates and can be claimed by them at any time. The certificates are not legal tender, but are receivable by the government in payment of any dues, and are "lawful money" in banking reserves. Their smallest denomination is $10.

The $413,000,000 in silver held by the Treasury in trust belonged to the holders of the outstanding silver certificates and Treasury notes of 1890. Silver dollars are legal tender for all payments, public and private, the principal and interest of government bonds excepted. They are credit money, but not redeemable in gold on demand. However, in ordinary times the holder has no difficulty in exchanging them for gold; and in extraordinary times, if nonredemption should threaten depreciation, the Secretary of the Treasury would be obliged to redeem them. The silver certificates are not legal tender, but are receivable by the government in payment of all dues. They are "lawful money."

The $1,000,000 in Treasury notes was all that remained uncanceled of the $156,000,000 issued under the act of 1890. The silver bullion bought under that act has been coined into dollars, and the Treasury will henceforth substitute silver certificates for Treasury notes as fast as the latter can be obtained from the public. The Treasury notes have all the legal-tender qualities of gold, except in payment of principal and interest of government bonds. They are redeemable in gold.

The United States notes, or greenbacks, are full legal tender except for the payment of import duties and principal and interest of the public debt. The $346,000,000 represented as in circulation is an estimate and is undoubtedly excessive, for no allowance is made for the greenbacks that must have been lost by fire and otherwise. Greenbacks are redeemable in gold on demand.

The subsidiary silver coins (half dollars, quarter dollars, and dimes) are legal tender for payments not exceeding $10. They are coined on government account as needed. Until 1903 the law fixed the maximum limit at $100,000,000, but this limit has since been raised.

The bank notes are not legal tender, but must be accepted by all national banks and by the government for all public dues except duties on imports, and may be paid out by the government for all dues to individuals except interest and principal of the public debt. Bank notes are not "lawful money."

Nearly 90 per cent of the country's currency in circulation in 1923 was credit money, and much of this is both lawful money in banks and full legal tender in payment of debts. The legal-tender constituents of the currency are gold coin, silver dollars, United States notes, and Treasury notes of 1890. Lawful money includes the foregoing and gold and silver certificates.

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# CHAPTER XVII

## PANIC OF 1907 AND WAR INFLATION AND CRISIS

251. The banking system of the United States unequal to the strain in 1907. 252. The Aldrich-Vreeland Act of 1908 provided for the issue of emergency currency. 253. Serious defects of the currency system prior to 1914. 254. Bankers were helpless before an approaching panic. 255. Bank assets were nonliquid and rediscounting was not in favor. 256. National bank notes secured by government bonds were inelastic. 257. Trade was handicapped by the domestic exchange system. 258. The position of the Federal Treasury as redemption agent was perilous. 259. The plan of the National Monetary Commission. 260. The Federal Reserve Act of 1913. 261. The federal reserve banks are bankers' banks. 262. Various powers and functions of reserve banks. 263. The cutting of reserve requirements makes credit expansion possible. 264. Under good management the federal reserve system will protect the Federal Treasury as redemption agent. 265. The World War threw the belligerent nations of Europe off the gold basis, causing depreciation of the French franc and English pound sterling. 266. The great rise of prices in the United States during and after the war was caused by gold inflation. 267. Causes of the buying fever and rise of prices which culminated in 1920. 268. Thus wars always cause high prices and an inflated bonded debt.

251. In 1907 the United States underwent the strain of a serious panic. It was the culmination of a brief period of great prosperity and credit expansion such as every country is likely to have when its money is steadily depreciating because of an increasing supply. Between 1904 and 1907 the general level of prices in the United States rose 14 per cent. The rise in 1906 alone was 6 per cent.[1] The rate of interest on capital also rose both in the United States and in Europe. The abounding prosperity and large money profits of business greatly stimulated the desire of men to enlarge the scale of their operations, and gave rise to most eager

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[1] See "Wholesale Prices, 1890 to 1912," *Bulletin No. 114 of U.S. Bureau of Labor Statistics.*

bidding for loanable capital.[1] There were present nearly all the phenomena of good times which are described hypothetically in sections 101 and 102 of Chapter VII.

The reaction in 1907 was world-wide. Early in the year the market prices of securities began to sag in Europe as well as in the United States. The great banks of Europe and Canada, seeing clearly the peril in the situation, gradually adopted measures for checking further inflation and expansion. In the United States, however, for reasons that we will discuss in this chapter, the proper corrective was not and could not be applied. Throughout the first eight months of the year, despite a great decline in stock-market prices, the general business throughout the country continued very active, and most business men and bankers seemed convinced that prosperity was on a sound and permanent basis. But in the third week of October panic came. It started with a run on a New York trust company, causing its suspension. Within a week the majority of the banks in the country had suspended cash payments, declining to give depositors more currency than was absolutely needed as pocket money. Each bank sought to protect itself by building up as large a cash reserve as possible, and none could feel entirely secure unless its cash holdings equaled the demand liabilities.

252. As a result of the panic of 1907 the subject of banking and currency immediately became one of great interest. In 1908 Congress enacted a law known as the Aldrich-Vreeland Act, which authorized the national banks of any community to organize a currency association with power to issue currency certificates for use as a medium of exchange. These certificates were to be issued to any member bank on pledge of satisfactory collateral, and were to bear the guaranty of all the banks belonging to the association. The act was to remain in force six years. This legislation merely made legal what had been a common practice of clearing houses

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[1] The Bank of England, for instance, advanced its rate to 7 per cent in December, 1906. Normally its rate is between 3 per cent and 4 per cent. Railroads and industrial corporations in the United States, being unable to market their bonds except at great sacrifice, were forced to borrow money at high rates of interest on short-term notes.

during the panic of 1907, when the clearing houses of many cities issued certificates without authority of law.[1]

It should be noted that the Aldrich-Vreeland Act provided only for the issue of what is commonly known as emergency currency. As the banks were required to pay a tax on any certificates which they obtained from a currency association, it is evident that in ordinary times no use would be made of the privilege. The act could serve no good purpose except during a panic, when it would enable the banks to supply the people with a medium of exchange in substitution for the lawful money either withdrawn and hoarded by depositors or stored in needlessly large amounts in the vaults of banks.

The Aldrich-Vreeland Act, which was to expire by limitation June 30, 1914, was extended by the Federal Reserve Act to June 30, 1915. The tax on circulating notes, secured otherwise than by United States bonds, was fixed in this act at 3 per cent per annum for the first three months, with an additional rate of ½ per cent per annum for each month thereafter until a tax of 6 per cent per annum was reached.

Up to January 1, 1914, only eighteen currency associations had been organized and no currency certificates had been issued. At the outbreak of the World War the banks resorted to the use of both clearing-house certificates and Aldrich-Vreeland currency. About $200,000,000 in certificates was issued and about $380,000,000 in emergency currency. Within ten months almost all the Aldrich-Vreeland notes were retired.

253. For fifty years after the passage of the National Banking Act, in 1863, business in the United States suffered because of defects in its banking and currency system. Chief among these defects were the following: (1) decentralization of the gold reserve; (2) lack of rediscount facilities and of central control over discount rates and the foreign exchanges; (3) inelasticity of the currency; (4) cumbersome system of domestic exchange; (5) liability of the Federal Treasury for the redemption of credit money.

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[1] Mr. A. Piatt Andrew, former Assistant Secretary of the Treasury, has estimated that the total issue of emergency currency during the panic of 1907 amounted to $500,000,000.

254. National banks in central reserve cities (New York, Chicago, and St. Louis) were required to carry in their own vaults a lawful money reserve of not less than 25 per cent against deposit liabilities; those in some fifty other cities, designated as reserve cities, also had to maintain 25 per cent reserves, of which one half might be on demand deposit with approved national banks located in the central reserve cities; all other national banks, known as country banks, had to maintain 15 per cent reserves, of which three fifths might be deposited with approved national banks in either central reserve or reserve cities.

New York City banks, because of their large call loan market, were able to pay a low rate of interest on funds deposited with them by country banks. Furthermore, it was convenient for country banks to have balances to their credit in New York, for through these balances they could draw on New York when selling domestic or foreign exchange to their customers. As a result of these circumstances New York banks have always been large debtors to banks in other parts of the country. In dull times money piled up high in New York; when business became more active, money was withdrawn from New York, and New York banks were obliged to call loans. This always hurt the speculator who had not foreseen it; and by depressing security and commodity values it often hurt the investor, the merchant, and the manufacturer.

Bankers found themselves helpless whenever they saw a monetary panic or pinch approaching. Even though the pinch seemed at first only a local affair, banks all over the country began drawing in their reserves, thus pulling strength away from the spot where it was needed and often bringing on a panic. This explains why the country suffered from the needless currency panic of 1907. The same process aggravated the evils of the industrial crises of 1873 and 1893.

The reader will understand the situation better if he takes into account the following facts: (1) the commercial banks of the country in 1913 owed their depositors about twenty billions, all payable on demand; the total currency supply of the country was only about three and one-half billions, of which less than one half was in the banks. Evidently, if all the depositors, or any considerable number of them, had called for their money on the same day, the banks would have had to close their doors.

255. What is the remedy? We must, as Mr. Paul M. Warburg has pointed out in one of his excellent pamphlets on the subject, treat our money reserves as a city does its water supply, — accumulate it in one or more large reservoirs and be able to send it at once to the spot where it is needed.[1] The bankers of Europe learned long ago that this was the effective way to maintain that confidence which is essential to the solvency and operation of any good banking system. In the United States, when financial trouble threatened, each bank had to depend upon itself.

Assets of the banks were nonliquid. Most of their loans were local, for there were no banks doing a nation-wide business and none had branches. These loans could not be turned into cash until maturity, and even then they often had to be renewed, especially in hard times when banks most needed larger cash reserves. To a small extent banks, when pressed for funds, would discount their customers' notes with other banks more fortunately situated. This practice is known technically as rediscounting. It was frowned upon and concealed, however, because it was regarded as a sign of weakness on the part of the bank selling its paper and because customers objected to having their notes peddled about where anyone might see what they were borrowing.

The objections were absurd. Rediscounting is the only way in which a bank can convert the great bulk of its assets from "frozen" to liquid form. It is a sign not of weakness but of good judgment.

European countries have long enjoyed the full advantages of a rediscount system. There a central bank holds the greater portion of a country's banking reserve. Banks in need of cash take their commercial paper to the central bank and rediscount it. The central bank fixes the rate at which such rediscounts are made and thus determines the rate which banks must charge on loans to their own customers. If a bank knows when a customer applies for a loan that it must rediscount, and pay 6 per cent, in order to furnish the funds required, it will certainly charge that customer more than 6 per cent if it is to make a profit on the loan.

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[1] See Mr. Warburg's illuminating monograph *The Discount System in Europe* (government document).

The central bank thus effectively controls the market rate of interest as soon as the banks must begin to call upon it for rediscounts. By raising its rate it can check an undue expansion of credit; quickly force liquidation in commodities, particularly in the stock and other speculative markets; call a halt on the rise in prices; and, through these methods, raise the rate of the country's exchange and check exportation of gold. Of course, by lowering its rate it can produce the opposite effect.

The reader will realize what a powerful weapon this is in controlling international exchanges and gold movements and how helpless a country must be which, itself without such a weapon, attempts to compete with a country so armed. For fifty years the United States was almost powerless either to regulate its own rates of interest and expansion of credit or to control its exportation and importation of gold.

256. The requirement that national bank notes could be issued only against an equal amount of government bonds deposited as security rendered the credit money of the country utterly inelastic. It neither expanded to accommodate increasing activity in business nor contracted as activity declined. Consequently, when trade increased and demanded additional currency, the banks could not forestall such a course of events or mitigate its effects.

257. The domestic-exchange system has already been discussed in Chapter V. It was a cumbersome and expensive system. If a man in Red Bank, New Jersey, sent a check on his local bank to a creditor in Coatesville, Pennsylvania, the check would be deposited promptly enough in some bank in Coatesville; but weeks or even months might elapse before it actually came back to Red Bank for payment. In the meantime, the depositor at Coatesville either could not use the funds because they were uncollected, or if he did get the use of them his bank or some other was paying out funds which it had not collected. This mass of uncollected checks floating around in the mails, and called the float, was enormous.

When the check finally got back to Red Bank the bank there would deduct an exchange charge before remitting the amount called for. This charge was either passed along directly to the depositor, absorbed by his bank, or indirectly collected from him through higher interest rates on his loans, requirement of a larger deposit balance, poorer service, or some other way.

The system required constant shipping of currency from one part of the country to another at no small expense and risk. Exchange on New York, with which a large part of inter-city payments were made, was quoted at a premium or discount in Chicago, New Orleans, and other cities. The United States, which boasted that it constituted the largest free-trade area in the world, found that in reality a tariff was being levied on its trade because of a defective system for making settlements between one city and another.

258. The reader is already familiar with the peril inherent in the obligations of the Federal Treasury as redemption agent for a large mass of credit money. The peril was strikingly illustrated in the three years following the panic of 1893, as described in the preceding chapter. The maintenance of the gold standard depended entirely upon the solvency of the national treasury. It was liable for the redemption in gold of $347,000,000 of United States notes, 550,000,000 silver dollars, and over $150,000,000 in subsidiary silver. Since national bank notes are redeemable by the banks in silver or United States notes, any excess in the issue of bank notes was likely to bring pressure upon the Federal Treasury for gold. The Treasury was not in the banking business and could obtain gold in an emergency only by the sale of bonds. So when inflation or a period of expansion changed the international balance of indebtedness against the United States and gave rise to a demand for gold for exportation, there was always danger that the so-called endless chain of greenbacks would again be set in motion, as in 1894 and 1895, and withdraw gold from the National Treasury in sums large enough to cause loss of confidence either at home or abroad.

259. In 1908 Congress created a National Monetary Commission, charged with the duty of making a thorough study of the

subject of banking. This commission reported in 1911, and in harmony with its recommendations a comprehensive bill was introduced in Congress.

The commission found that the situation in the United States called for the establishment of some kind of central institution similar to the great banks of Europe. They believed, however, that the new institution should not be a competitor of existing banks, and in consequence their bill provided for the creation of a so-called National Reserve Association, which was to have power to do business with banks only. Its capital was to be supplied by the national and state banks which joined the association. It was to be managed by a board of forty-two directors elected by the member banks and representing the commercial, industrial, and banking interests of the country. There were to be local associations, and these were to be organized into district associations, of which there were to be at least fifteen. A local or district association, subject to the authority of the central board, was to be managed by men selected by its own member banks.

Practically, this National Reserve Association was to be a bankers' bank with branches in different parts of the country. It was to have power (1) to carry a large part of the reserves of member banks; (2) to rediscount indorsed promissory notes and bills of exchange for member banks; (3) to deal in gold bullion and foreign exchange; (4) to act as fiscal agent for the government of the United States, receiving and disbursing government funds. In order to encourage the use of bills of exchange and develop in this country a discount market, national banks were given the right to accept time drafts arising out of commercial transactions up to the amount of one half of their capital and surplus.

The association was given the right to issue bank notes to the amount of $900,000,000, against which it was to carry a reserve of at least 50 per cent in gold or lawful money. If it issued notes in excess of $900,000,000, the excess was to be taxed at the rate of 1½ per cent per annum, unless it was covered by an equal amount of lawful money. National banks were to be permitted to continue the issue of notes up to the amount then in circulation, but additional issues were forbidden. The act contemplated the ultimate retirement of the national bank note, its place to be taken by the notes of the association.

This plan of the National Monetary Commission was commonly known as the Aldrich Plan, Senator Aldrich of Rhode Island having been chairman of the national commission. It had the approval of prominent bankers and experts in finance, but was obnoxious to Democrats, partly because it was a Republican measure and partly on the ground that it would centralize the so-called money power of the country and finally fall under the control of the great business and financial interests in New York City. Its fundamental weakness lay in its failure to give the government control of the conduct of the reserve association. In order to satisfy the popular demand for a reform of the banking system, another plan (one providing for less centralization of power and reserves) was devised. The House bill, which was adopted in September, 1913, called forth vigorous criticism from banking and business organizations. As a result it was greatly modified in the Senate. The Federal Reserve Act became a law December 23, 1913. In some important respects it is unlike either the House bill or the Senate bill.[1]

260. Under the Federal Reserve Act the country is divided into twelve districts in each of which there is a federal reserve bank. These reserve banks may have branches in their own districts, and many do have them. The capital of each reserve bank is subscribed by the member banks within its district. All national banks are compelled to be members and state banks are permitted to join provided they comply with certain requirements.

The reserve banks are under the "general supervision" of the Federal Reserve Board at Washington, the members of which are appointed by the President. The Board has extensive powers, either granted specifically or implied in the Federal Reserve Act. It can go to almost any extent it chooses in the management of the reserve banks. Detailed written reports are sent to Washington — daily, weekly, monthly, and annually — and all twelve banks are connected with one another and with the Board by private wires. The Board is thoroughly informed about the current operations of every reserve bank and does exercise control in many cases with regard to very minute details. The Federal Reserve Board also has a staff of examiners who from time to time visit the reserve banks and make thorough examinations. Although the Board has no capital of its own, the federal reserve system in effect provides a central bank.

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[1] The Democratic platform adopted at Baltimore in 1912 declared against the Aldrich Plan. About the exact wording of the banking plank there is some dispute. In the Democratic Official Handbook the plank reads as follows: "We oppose the so-called Aldrich Bill *for* the establishment of a central bank." In most newspapers the word "for" was printed "or." However the original draft may have been written, the leaders in Congress evidently assumed that the platform declaration had been against any and all kinds of central banks. Summaries of the Federal Reserve Act and of the Aldrich Plan are printed in the Appendix.

Each reserve bank has a board of nine directors, three of whom are appointed by the Federal Reserve Board and six elected by the member banks in the district. The Board designates one of its appointed members as Federal Reserve Agent and Chairman of the reserve bank's board of directors. He is the personal representative of the Board in his reserve bank. Each reserve bank has a governor, elected by its directors, whose functions correspond closely to those of the president of any other bank.

The directors of each reserve bank elect a man to become a member of the Federal Advisory Council, which then has twelve members. The Council acts merely in an advisory capacity to the Board and has no active part in the management of the banks.

261. The reserve banks are bankers' banks. They accept deposits from member banks, the government, and, for exchange purposes only, from other reserve banks and from nonmember banks in their respective districts. They do not accept deposits from individuals or business houses. Likewise they loan only to their respective member banks, to one another, and to the government (through the purchase of bonds and certificates of indebtedness). They may also deal in the warrants, etc., of the political subdivisions of the United States, with certain restrictions. They buy, from banks or any one in the open market, bills of exchange and domestic acceptances of the type permitted under the act; but they do not loan directly to individuals or business concerns.

262. A reserve bank rediscounts for its member banks the notes of their customers provided they arise out of commercial or agricultural transactions and have not longer to run than is specified in the act. It also loans directly to member banks upon government securities as collateral. By permission or direction of the Board it rediscounts for other reserve banks, or purchases bills of exchange, acceptances, or securities from them. The rate of discount charged to member banks or to other reserve banks is subject to the approval or determination of the Board. By exercising these powers the Board can shift funds from one part of the country to another upon its own terms, as need may arise.

A reserve bank issues federal reserve notes in exchange for gold or commercial and agricultural paper of the kinds eligible for rediscount. Evidently these notes may expand as trade requires so long as the reserve bank has sufficient reserves to back them up. A reserve bank must not pay out the notes of another reserve bank, but must send them either to the issuing bank or to the Board for redemption. As soon, therefore, as a federal reserve note gets into a reserve bank, it is retired.

The reserve banks issue another type of note, called the federal reserve bank note. These are issued against a deposit of government securities, just as are the national bank notes. Like the latter, they are not elastic. Reserve bank notes have been issued to a large extent to take the place of silver certificates and silver dollars, because the government has been selling silver in response to the foreign demand. On July 1, 1923, there were $22,000,000 of reserve bank notes outstanding as compared with $2,677,000,000 of federal reserve notes, the latter furnishing the elastic element in our circulation.

Provision is made for the gradual retirement of the national bank notes, and they were being retired steadily for a while. The heavy demand for currency toward the end of the World War and immediately following, however, increased their issue again so that in July, 1923, it stood about where it did in 1914, namely, about $747,000,000.

In order to encourage the development of "dollar exchange" (that is, drafts in terms of American money) and of a discount market in the United States, member banks are permitted to accept drafts arising out of foreign trade and certain types of domestic trade. Under the Edge Act, passed December 24, 1919, banks are permitted to combine in the establishment of foreign banking corporations which are to deal exclusively in transactions connected with the financing of foreign trade. Member banks may also establish branches in foreign countries.

The Board acts as a clearing house for the reserve banks, and they in turn do the same for banks in their districts. Nonmember banks as well as member banks may avail themselves of the clearing privilege by conforming to certain requirements. Neither members nor nonmembers are required to clear. All member banks are required, however, to remit at par to the reserve bank for any items presented to them for payment. In many districts nonmember banks are practically compelled to do the same through the medium of presenting items by express companies or other agencies when any bank refuses to remit at par for items sent through the mails. This practice has caused some friction between the nonmember state banks and the reserve banks. Through this system enormous saving is made both in time and in money. Each reserve bank is required to maintain a balance of not less than $1,000,000 in the Gold Settlement Fund at Washington to be available there for settling balances due other reserve banks. On June 21, 1923, the total amount on deposit by the twelve banks was $695,000,000. During the month ending June 21, 1923, total clearings through the fund amounted to $7,000,000,000. The reserve banks make no charge for this service, and the member banks are strictly limited as to the charge they may make to depositors.

The reserve banks act as fiscal agents of the government. During the World War they rendered notable service in this connection. The old subtreasuries have been discontinued and their functions assumed by the reserve banks.

263. The federal reserve banks are required to carry a reserve of 40 per cent in gold against federal reserve notes outstanding and 35 per cent against deposits. A graduated tax is provided for any deficiency in reserves.

The reserve requirements of national banks are cut practically in half; and all legal reserves must be deposited with the reserve bank of the district, so that cash in a national bank's own vault is now nothing more than till money. The legal requirements are as follows:

| | |
|---|---|
| *A*. Against time deposits: | |
| All national banks | 3 per cent |
| *B*. Against demand deposits: | |
| Central Reserve City Banks | 13 per cent |
| Reserve City Banks | 10 per cent |
| Country Banks | 7 per cent |

All member banks come under the same reserve requirements as those for national banks. Of course, state law may require more or less in the case of member state banks and trust companies; but in some states the law has been changed to conform to the Federal Reserve Act in so far as reserves of member state institutions are concerned.

It will be seen at a glance that cutting reserve requirements, as the act did, made possible an enormous expansion of credit based upon the same reserves. Under the National Banking Act, for example, $100,000 of deposits in a New York City bank required $25,000 in reserves; under the Federal Reserve Act the same deposits would require a reserve deposit with the reserve bank of $13,000, and against this reserve deposit the actual cash required to be held by the reserve bank is only $4550. In the case of New York City, then, a dollar of reserve is nearly five and one-half times as potent as it was under the National Banking Act.

264. The act did not change the status of the United States Treasury as redemption agent. Instead of lessening the liability of the Treasury, it increased it, for it made the Treasurer responsible for the new federal reserve notes. Nor did it lessen the heterogeneity of our currency supply. On the contrary, it added two new kinds of bank notes to the existing stock. It did lessen the probability that the Treasury would again be embarrassed by the redemption problem, for the federal reserve system properly managed will prove a powerful safeguard to American credit.

Proper management is a difficult task, not to be accomplished by men whose only or chief experience lies in the field of politics. The federal reserve system must be divorced, and kept divorced, from politics.

265. The war which began in August, 1914, between the Central Powers and the Entente in Europe affected prices in many countries in a manner illustrating most clearly some of the fundamental principles of money which have been expounded in the earlier chapters of this book. All of the belligerent countries in Europe abandoned the gold standard when the war broke out and issued huge quantities of bank notes and other forms of paper money. As this so-called credit money was not redeemable in gold, depreciation of the currency, in varying degrees in different countries, immediately took place. There was of course at the same time a corresponding rise of prices in different countries.

Inasmuch as the United States, even after it entered the war in 1917, was able to maintain the gold standard throughout the war and thereafter, the gold value of the depreciated European currencies was accurately indicated by their foreign exchange value quoted in American dollars. The English sovereign declined from par ($4.8665) to $3.20. In 1920 it began to recover its value and by August 14, 1923, it was worth $4.57. On the same date the French franc (par 19.3 cents) was worth only 5.5 cents, while the German mark (par 23.8 cents) was worth only .000033 cent, over three million marks to the gold dollar. We cannot here discuss the monetary problems left as a legacy of the war to the various countries of Europe. It must suffice to point out to the reader that many European countries under the stress of the World War furnished the student of money some most remarkable illustrations of the nature of fiat money and of the perils, distress, and injustice inevitably connected with its use.

As is usually the case, government officials in Europe have been reluctant to admit that their currencies were depreciated, and instead have claimed, as they did in England in 1810, that gold was at an abnormal premium because of the exigencies of war, or have sought to "amuse their ignorant subjects with fantastic explanations of the perversity of the exchanges and chimerical schemes for 'correcting' them by stopping imports or borrowing still more from abroad."[1] But the reader must not let himself be confused by statements from official quarters, no matter how high, which are in conflict with sound principles. The simple fact is that paper money not redeemable in gold, and issued in quantities in excess of the amount of gold and convertible paper normally demanded by the business of a country, causes the prices of commodities to rise and becomes automatically fiat money.

Since England's leadership in finance and London's proud position as the world's financial centre cannot long be maintained unless a paper pound and a sterling bill of exchange are redeemable in gold at their face value, there is every reason to believe that the English government and England's financiers will do their utmost to reëstablish their monetary system fairly on the gold standard. This can be accomplished, of course, only by the retirement of a certain amount of depreciated paper money issued during and immediately after the war.

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[1] From the Introduction to the "Paper Pound of 1797–1821," by Edwin Cannan, Professor of Political Economy in the University of London. In this volume, which is a reprint and discussion of the famous Bullion Report of 1810, Professor Cannan, commenting on the deadly nature of government issues of paper money, says in the Introduction: "In the comparatively short war of 1914–1918 currencies 'not convertible at will into a coin which is exportable' (Report, p. 17) were issued by governments and government banks in amounts compared with which the 100 per cent increase in thirteen years, which made the Bullion Committee complain so vigorously in 1810, looks absolutely trifling. The British government brought out an entirely new issue of £1 and 10s. notes and increased it to 293 millions at the date of the armistice: the Bank of France increased its issue from 6000 million francs to 30,500 millions: the Italian increase was from 2500 millions to over 8000. The precise increase in Germany and Austria-Hungary is obscure, but understood to have been much greater. The record since the armistice is still less of a kind to give the present-day Europeans ground for boasting themselves better than their fathers. In twenty-three weeks the British government had increased the note issue by 59 millions more, and the total still stood on October 1, 1919, at 335 millions. The French issue on October 2 was 36,250 millions, the Italian in July, 1919, was about 10,000 millions, and the Russian ruble is being manufactured in numbers which suggest astronomers' calculations rather than anything terrestrial. The result is what Horner and the Bullion Committee feared. The pound in October, 1919, will buy just about the same amount of gold as it would when the Bullion Committee sat in 1810, that is, about 107 grains instead of the normal 123¼, but it is respectable compared with its colleagues in Europe."

France faces a more difficult problem than England, for the franc suffered greater depreciation than the paper pound. But the French people, like the Italians, have in the past proved their ability to cope with difficult financial problems, and we may hope therefore that both France and Italy will in a few years have restored their currency to the gold basis. The great depreciation of the German mark leads one to believe that it will never be restored to its original value. It would seem more likely that an entirely new coinage will be adopted by the German government if any real effort is made in the future to place the German currency on the gold basis.

Chart VI, on page 382, will give the reader a general idea of the course of prices during and after the World War in the United States, England, France, and Italy. It will be noted that changes in prices in England, although at a higher level, corresponded quite closely with price changes in the United States. In Italy and France, on account of the large issues of paper currency, prices rose to much greater heights than in the United States and England. The chart is reproduced from the *Monthly Review* of the Federal Reserve Bank of New York of December 31, 1920.

266. While the United States, as we have said, was able to maintain the gold standard during the war and thereafter, nevertheless its people suffered from the evils of an inflated currency, although in lesser degree than the people of other belligerent nations. During the years 1915–1916 the monetary gold stock of the United States, on account of heavy imports from Europe sent in payment for exports of war supplies, increased by about $1,000,000,000, the total amounting at the end of 1916 to nearly $3,000,000,000. This new gold found its way into the banks of the United States and became the basis for an expansion of credit and caused a remarkable rise of prices during 1916–1917. The index number computed on the basis of the price of 1913 as 100 stood at 186 in July of 1917. Although the country's monetary stock of gold did not increase after 1917 the level of prices continued to rise until May of 1920, when the index number stood at 272, which meant of course that in that month

$2.72 would buy in the wholesale markets no more of goods in general than was purchasable with $1 in 1913.

This great rise of prices was by many people attributed to the scarcity of goods due to the diminution of the country's productive power, while others explained it by the statement that the war had greatly increased the demand for goods and so caused the rise of prices. The average man does not understand the relation of money and credit to prices, and so lends a ready ear to the most plausible explanation that is offered. Hence when it was officially explained that the increased quantity of currency and bank credit was not the cause of high prices but rather the result, many people were inclined to accept this dictum almost as

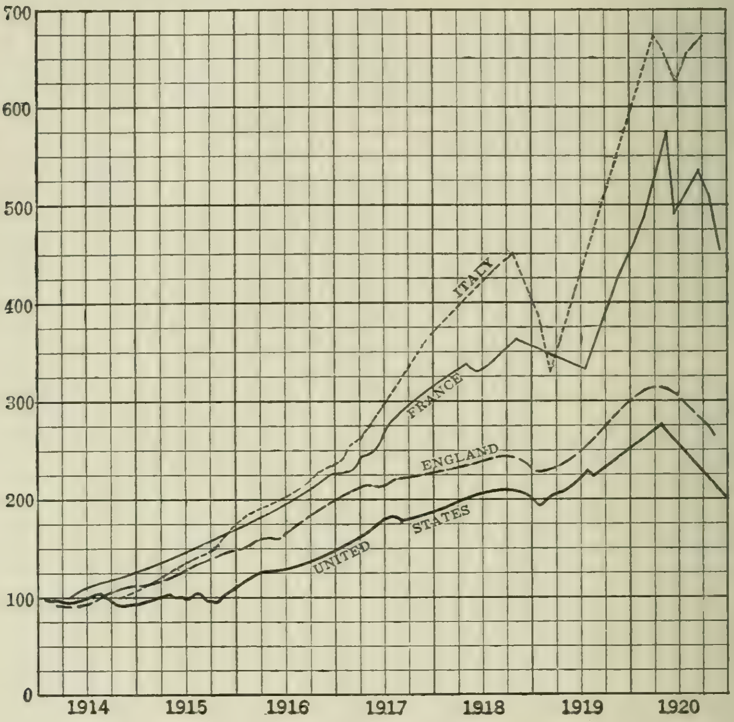

CHART VI

if it were self-evident. The demand for goods, it was explained, in connection with their scarcity had made prices rise, and this rise of prices had made necessary the issue of more paper currency in order that the business of the country might not suffer. The weakness of this explanation lies in the fallacious assumption that there can be an increase in the demand for goods before there has been any increase in the supply of money and credit. No man can buy goods unless he has money in his pocket or a bank account or credit with the seller, and he cannot get credit with the seller unless the latter believes that in due time money or its equivalent will be forthcoming.

This great rise of prices in the United States, strictly speaking, was the product of inflation quite as much as if it had been caused by an excessive issue of paper currency. Economically the $1,000,000,000 of gold which the war added to the monetary stock of the United States did not belong to it, for the gold had not come in response to the normal laws of trade and commerce. Since, however, it was injected into our monetary system and made the basis for a great expansion of credit, its effect on the price level was no different from that which would have been exerted by an issue of a billion dollars of legal tender greenbacks. We must conclude therefore that the rise of prices in the United States from 1914 to 1920 was the result of gold inflation. This may seem to some readers paradoxical and anomalous. Yet it is strictly true that the monetary unit of the United States was an inflated gold dollar during the war, and the probability is that it will remain such so long as the United States retains possession of the gold it obtained in the course of the war.

Chart VII, on page 385, gives the reader a graphic view of the changes in the stock of gold in the United States from 1913 to 1920, the concurrent changes in the level of prices, and the great increase in the volume of the country's bank clearings, which are fair indices of the expansion of bank credit. During this period the index number of wholesale prices (the average of prices in 1913 being assumed as 100) rose from 100 in 1913 to 272 in May, 1920, thereafter declining rapidly, so that the average of prices in 1920 was only 236; the total of the country's bank clearings increased at equal pace, rising from 100 in 1913 to 265 in 1920. The country's monetary stock (gold and credit money) increased in similar fashion, namely, from $3,700,000,000 in 1913 to $8,400,000,000 at the end of 1920 — a rise from 100 to 227.

The following table gives the figures on which Chart VII is based.

| YEAR | GOLD STOCK IN UNITED STATES (Millions) | BANK CLEARINGS IN UNITED STATES (Millions) | INDEX NUMBERS OF WHOLESALE PRICES (Bureau of Statistics, United States Department of Labor) | |
|---|---|---|---|---|
| | | | Yearly Average | Highest Monthly Average |
| 1913 | $1917 | $169,811 | 100 | 100 |
| 1914 | 1817 | 155,241 | 100 | 100 |
| 1915 | 2261 | 187,813 | 101 | 101 |
| 1916 | 2741 | 261,850 | 124 | 134, October |
| 1917 | 3040 | 306,942 | 176 | 186, July |
| 1918 | 3080 | 332,349 | 196 | 207, September |
| 1919 | 2833 | 417,415 | 212 | 238, December |
| 1920 | 2761 | 451,030 | 236 | 272, May |

267. The sharp upward tilt of prices in the latter part of 1919 and the first half of 1920 and the sharp decline in the latter part of 1920 require a few words of explanation, for during this period the monetary stock of gold in the United States decreased by some $300,000,000. Why under such circumstances does the index number of prices within a year rise from 200 to 272 and then in seven months suffer an equal decline? If the reader examines Chart VI, on page 382, he will discover that during the same period there were similar sharp fluctuations of prices in England, France, and Italy. It is fair to assume therefore that common causes were at work in all these countries. In the United States we know of at least three circumstances that made for higher prices in this period, and it is quite probable that similar conditions prevailed in other countries.

1. After the armistice was signed, although there was for a time some recession of prices, there was soon developed in 1919 a great feeling of buoyancy and confident expectation, which led to extravagant speculation in commodities.

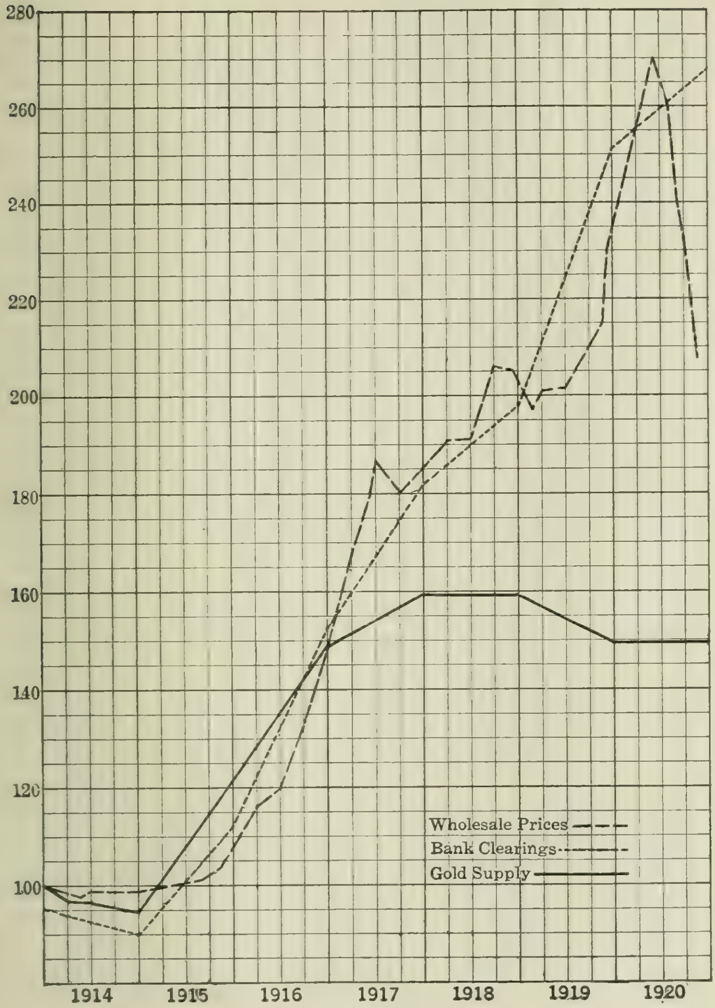
280
260
240
220
200
180
160
140
120
100
1914
1915
1916
1917
1918
1919
1920
Wholesale Prices
Bank Clearings
Gold Supply

CHART VII

2. The flotation of the Victory Loan in the spring of 1919 was very largely financed by an expansion of credit,[1] the banks throughout the country lending most liberally against promissory notes secured by government bonds.

3. The people of the United States, rejoicing that the war was over, tired of pinching and saving to help win the war, and longing for the luxuries and indulgences they had denied themselves during the war, began to sell their Liberty bonds and with the proceeds indulged in an extravagant orgy of buying. Many shops throughout the country freely advertised their willingness to accept Liberty bonds in payment for the goods on their shelves. The demand for goods was so eager and insistent during this period that prices rose by leaps and bounds and fortunes were made by men who had little or no experience in business.

The buying fever culminated in May, 1920, and in the ensuing months prices rapidly declined, bringing disaster to many business firms which had failed to see or guard against the peril concealed in the wild so-called "seller's market" which followed the armistice.[2]

The use of Liberty bonds as currency worked mischief in two ways, for it not only increased the demand and raised the prices

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[1] The bulk of the subscriptions to the Liberty and Victory loans were made through banks, the subscribers paying varying percentages of cash and giving their notes for the balance. Using as collateral the bonds and certificates of indebtedness issued in anticipation of the bonds, banks discounted their own notes at a federal reserve bank. The floating of a war loan, therefore, was always accompanied by a great increase in the volume of member banks' collateral notes secured by government war obligations, which were discounted by the federal reserve banks. The flotation of the Victory Loan, for example, raised these discounts from $1,350,000,000 in January, 1919, to $1,860,000,000 in May.

[2] Wholesale prices in the United States rose and fell during 1920 as follows, the figures being the monthly average of prices as calculated by the United States Bureau of Labor Statistics, the average of prices in 1913 being taken as 100:

| | | | |
|---|---|---|---|
| January | 248 | July | 262 |
| February | 249 | August | 250 |
| March | 253 | September | 242 |
| April | 265 | October | 225 |
| May | 272 | November | 207 |
| June | 269 | December | 189 |

It is not strange that business failures in the latter part of 1920 were 100 per cent greater in number and liabilities than in the corresponding period of 1919. On of goods but at the same time tended to lessen the production of goods. Shopkeepers sold the bonds which they received from their customers and thus absorbed a large amount of investment capital which might otherwise have been used productively. The net result of the buying craze was curtailment of production, scarcity of many forms of merchandise, especially luxuries, exhaustion of the people's artificial buying power, collapse of prices, numerous business failures, cancellation of orders, increasing unemployment, and general depression.

268. It would be idle to criticize the financial conduct of the World War on the part of any of the belligerents, but it is certainly time for thoughtful men to consider most seriously whether war must necessarily be accompanied by demoralizing changes in the price level, inflicting great hardships on innocent people long after the peace treaty has been signed. The rise of prices in the United States, as a result of the recent war, was greater and more demoralizing than the rise of prices which took place during and after the Civil War of 1860–1865. Then the advance in prices was from 100 in 1860 to 217 in 1865, whereas the rise of prices in the recent war was from 100 in 1913 to 272 in 1920. When wars cause such changes in the price level, to say nothing of the heritage of an inflated bonded indebtedness burdening the future years, one cannot help feeling that the aftermath of war is much more grievous than need be. This is a subject most worthy of scientific attention, and the conclusion may be that a nation plunged into war ought to conscript its entire people, and not merely those who are fit for the firing line. Then the need for gigantic bond issues and for currency inflations might not arise.

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the contrary, it is most remarkable that the country weathered such a price cyclone without universal bankruptcy.

The average of wholesale prices for January, 1921, was 177. In view of the great increase in the country's gold stock, there was good reason for believing that the great drop of prices was nearly at an end. The country nevertheless faced difficult problems. Many banks in the West and South were heavily burdened with loans against agricultural produce made when prices were high; retailers, in involuntary league, clung desperately to the high prices as the only means of avoiding bankruptcy; and labor fought hard against any reduction of its war wages. But economic laws are as resistless as the laws of nature. Readjustment, however painful, was inevitable.

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[1] Students should read especially the interviews with foreign bankers in Europe. The publications are sold at cost price by the Superintendent of Documents, Washington, D.C.

# APPENDIX

## I. GOLD STANDARD ACT OF MARCH 14, 1900[1]

(SECTIONS 2 to 9 INCLUSIVE)

CHAPTER 41. — *An act to define and fix the standard of value, to maintain the parity of all forms of money issued or coined by the United States, to refund the public debt, and for other purposes.*

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled*, That the dollar consisting of twenty-five and eight tenths grains of gold nine tenths fine, as established by section thirty-five hundred and eleven of the Revised Statutes of the United States, shall be the standard unit of value, and all forms of money issued or coined by the United States shall be maintained at a parity of value with this standard, and it shall be the duty of the Secretary of the Treasury to maintain such parity.

### MAINTENANCE OF RESERVE FUND

SEC. 2. That United States notes, and Treasury notes issued under the act of July fourteenth, eighteen hundred and ninety, when presented to the Treasury for redemption, shall be redeemed in gold coin of the standard fixed in the first section of this act; and in order to secure the prompt and certain redemption of such notes as herein provided it shall be the duty of the Secretary of the Treasury to set apart in the Treasury a reserve fund of one hundred and fifty million dollars in gold coin and bullion, which fund shall be used for such redemption purposes only; and whenever and as often as any of said notes shall be redeemed from said fund it shall be the duty of the Secretary of the Treasury to use said notes so redeemed to restore and maintain such reserve fund in the manner following, to wit: First, by exchanging the notes so redeemed for any gold coin in the general fund of the Treasury; second, by accepting deposits of gold coin at the Treasury or at any subtreasury in exchange for the United States notes so redeemed; third, by procuring gold coin by the use of said notes, in accordance with the provisions of section thirty-seven hundred of the Revised Statutes of the United States. If the Secretary of the Treasury is unable to restore and maintain the gold coin in the reserve fund by the foregoing methods, and the amount of such gold coin and bullion in said fund shall at any time fall below one hundred million dollars, then it shall be his duty to restore the same to the maximum sum of one hundred and fifty million dollars by borrowing money on the credit of the United States, and for the debt thus incurred to issue and sell coupon or registered bonds of the United States, in such form as he may prescribe, in denominations of fifty dollars or any multiple thereof, bearing interest at the rate of not exceeding three per centum per annum, payable quarterly, such bonds to be payable at the pleasure of the United States after one year from the date of their issue, and to be payable, principal and interest, in gold coin of the present standard value, and to be exempt from the payment of all taxes or duties of the United States, as well as from taxation in any form by or under state, municipal, or local authority; and the gold coin received from the sale of said bonds shall first be covered into the general fund of the Treasury and then exchanged, in the manner hereinbefore provided, for an equal amount of the notes redeemed and held for exchange; and the Secretary of the Treasury may, in his discretion, use said notes in exchange for gold, or to purchase or redeem any bonds of the United States, or for any other lawful purpose the public interests may require, except that they shall not be used to meet deficiencies in the current revenues. That United States notes when redeemed in accordance with the provisions of this section shall be reissued, but shall be held in the reserve fund until exchanged for gold, as herein provided; and the gold coin and bullion in the reserve fund, together with the redeemed notes held for use as provided in this section, shall at no time exceed the maximum sum of one hundred and fifty million dollars.

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[1] From *Laws of the United States Relating to the Coinage* (Washington, 1904).

SEC. 3. That nothing contained in this act shall be construed to affect the legal-tender quality as now provided by law of the silver dollar, or of any other money coined or issued by the United States.

## DIVISIONS OF ISSUE AND REDEMPTION ESTABLISHED

SEC. 4. That there be established in the Treasury Department, as a part of the office of the Treasurer of the United States, divisions to be designated and known as the division of issue and the division of redemption, to which shall be assigned, respectively, under such regulations as the Secretary of the Treasury may approve, all records and accounts relating to the issue and redemption of United States notes, gold certificates, silver certificates, and currency certificates. There shall be transferred from the accounts of the general fund of the Treasury of the United States, and taken up on the books of said divisions, respectively, accounts relating to the reserve fund for the redemption of United States notes and Treasury notes, the gold coin held against outstanding gold certificates, the United States notes held against outstanding currency certificates, and the silver dollars held against outstanding silver certificates, and each of the funds represented by these accounts shall be used for the redemption of the notes and certificates for which they are respectively pledged, and shall be used for no other purpose, the same being held as trust funds.

SEC. 5. That it shall be the duty of the Secretary of the Treasury, as fast as standard silver dollars are coined under the provisions of the acts of July fourteenth, eighteen hundred and ninety, and June thirteenth, eighteen hundred and ninety-eight, from bullion purchased under the act of July fourteenth, eighteen hundred and ninety, to retire and cancel an equal amount of Treasury notes whenever received into the Treasury, either by exchange in accordance with the provisions of this act or in the ordinary course of business, and upon the cancellation of Treasury notes silver certificates shall be issued against the silver dollars so coined.

## ISSUE OF GOLD CERTIFICATES

SEC. 6. That the Secretary of the Treasury is hereby authorized and directed to receive deposits of gold coin[1] with the Treasurer or any assistant treasurer of the United States in sums of not less than twenty dollars, and to issue gold certificates therefor in denominations of not less than twenty dollars, and the coin so deposited shall be retained in the Treasury and held for the payment of such certificates on demand, and used for no other purpose. Such certificates shall be receivable for customs, taxes, and all public dues, and when so received may be reissued, and when held by any national banking association may be counted as a part of its lawful reserve: *Provided*, That whenever and so long as the gold coin held in the reserve fund in the Treasury for the redemption of United States notes and Treasury notes shall fall and remain below one hundred million dollars the authority to issue certificates as herein provided shall be suspended: *And provided further*, That whenever and so long as the aggregate amount of United States notes and silver certificates in the general fund of the Treasury shall exceed sixty million dollars the Secretary of the Treasury may, in his discretion, suspend the issue of the certificates herein provided for: *And provided further*, That of the amount of such outstanding certificates one fourth at least shall be in denominations of fifty dollars or less: *And provided further*, That the Secretary of the Treasury may, in his discretion, issue such certificates in denominations of ten thousand dollars, payable to order. And section fifty-one hundred and ninety-three of the Revised Statutes of the United States is hereby repealed.

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[1] By Act of Congress the Secretary is now authorized to issue gold certificates against deposits of gold bullion.

### DENOMINATION OF SILVER CERTIFICATES

SEC. 7. That hereafter silver certificates shall be issued only of denominations of ten dollars and under, except that not exceeding in the aggregate ten per centum of the total volume of said certificates, in the discretion of the Secretary of the Treasury, may be issued in denominations of twenty dollars, fifty dollars, and one hundred dollars; and silver certificates of higher denominations than ten dollars, except as herein provided, shall, whenever received at the Treasury or redeemed, be retired and canceled, and certificates of denominations of ten dollars or less shall be substituted therefor, and after such substitution, in whole or in part, a like volume of United States notes of less denomination than ten dollars shall from time to time be retired and canceled, and notes of denominations of ten dollars and upward shall be reissued in substitution therefor, with like qualities and restrictions as those retired and canceled.

SEC. 8. That the Secretary of the Treasury is hereby authorized to use, at his discretion, any silver bullion in the Treasury of the United States purchased under the act of July fourteenth, eighteen hundred and ninety, for coinage into such denominations of subsidiary silver coin as may be necessary to meet the public requirements for such coin: *Provided*, That the amount of subsidiary silver coin outstanding shall not at any time exceed in the aggregate one hundred millions of dollars.[1] Whenever any silver bullion purchased under the act of July fourteenth, eighteen hundred and ninety, shall be used in the coinage of subsidiary silver coin, an amount of Treasury notes issued under said act equal to the cost of the bullion contained in such coin shall be canceled and not reissued.

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[1] By Act of Congress in 1903 the Secretary was given authority to coin subsidiary silver without limitation as to the amount outstanding.

Sec. 9. That the Secretary of the Treasury is hereby authorized and directed to cause all worn and uncurrent subsidiary silver coin of the United States now in the Treasury, and hereafter received, to be recoined, and to reimburse the Treasurer of the United States for the difference between the nominal or face value of such coin and the amount the same will produce in new coin from any moneys in the Treasury not otherwise appropriated.

## II. PRINCIPAL FEATURES OF THE ALDRICH PLAN AND THE FEDERAL RESERVE ACT

| ALDRICH PLAN | FEDERAL RESERVE ACT |
|---|---|
| I. Charter, Capital, and Location | I. Charter, Capital, and Location |
| Fifty-year charter for a National Reserve Association (N. R. A.); head office in Washington; authorized capital equal to 20 per cent of the capital of banks eligible for membership (estimated at $300,000,000) — one half payable in cash, the remainder subject to call.<br>The country to be divided into fifteen districts, with a branch of N. R. A. in each. | At the head of the system is the Federal Reserve Board, consisting of eight members, with an office in Washington; no capital.<br>A Federal Advisory Council consisting of as many members as there are reserve districts, twelve; no capital.<br>Incorporates for twenty years not less than eight nor more than twelve federal reserve banks, each in a city in a federal reserve district, the districts together to embrace the continental United States, excluding Alaska. |
| Branches of N. R. A. not to have any capital. | To the capital of a federal reserve bank, not to be less than $4,000,000, member banks must |

| | |
|---|---|
| All subscribing banks to be formed into local associations, each to have corporate powers and to be composed of not less than ten banks. •These local associations to be grouped into fifteen districts. (There is no provision for local associations in the Federal Reserve Act except in that it extends life of Aldrich-Vreeland Act.) | subscribe a sum equal to 6 per cent of their paid-in capital and surplus — one half payable in installments within six months, the remainder subject to call. |
| | If banks do not make sufficient subscriptions, stock may be offered for public subscription, no single legal person to hold more than $25,000 in any one reserve bank. If bank and public subscriptions are insufficient, the United States is to underwrite the balance. |
| Stock of N. R. A. not to be transferable and not to be hypothecated. | Only stock held by member banks is entitled to voting power. |
| Outstanding capital stock to be increased as the capital (not surplus) of member banks is increased or as new members are added, and decreased vice versa. Surrendered shares to be priced at book value. | Requirement that a national bank shall deposit United States bonds before commencing business, or to retain its charter, is repealed.<br>Congress may amend or repeal the act at any time. |
| II. Membership | II. Membership |
| National banks not required to subscribe. All national banks, state banks, trust companies, etc., may become members if they comply with the requirements of the act. | Every national bank must subscribe to the reserve bank of its district within thirty days after notice from the organization committee or cease to act as a reserve agent. If any national bank in the United States (excluding Alaska) fails to comply with the act within one year after its passage, it will forfeit its charter. |

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| III. Earnings, Dividends, and Taxes | III. Earnings, Dividends, and Taxes |
| From net earnings, cumulative dividends of 4 per cent to be paid. Further earnings to be divided — one half to go to surplus fund until it amounts to 20 per cent of paid-in capital, one fourth to United States, and one fourth to stockholders; but stockholders not to receive over 5 per cent dividends altogether. After they receive 5 per cent, further earnings to go, one half to surplus and one half to United States until the surplus reaches the 20 per cent limit, after which all additional earnings to go to United States. | Cumulative dividends of 6 per cent payable on the stock; the remainder of net earnings to be paid into a surplus fund until it amounts to 100 per cent of the subscribed capital, and thereafter 10 per cent of such earnings to be paid into surplus; all remaining earnings to go to the United States.<br>All payments to the United States in its own right are to be used to supplement the gold reserves against United States notes or to reduce the outstanding bonded indebtedness. |
| N. R. A. and its branches and the local associations exempt from state and local taxation except taxes upon real estate. | Capital stock, surplus, and income of federal reserve banks exempt from taxes except upon real estate. |
| N. R. A. to pay United States a franchise tax of 1½ per cent annually upon an amount equal to par value of United States bonds transferred to it by banks. | |
| IV. Stockholders' Liability | IV. Stockholders' Liability |
| Expenses and losses of local associations in excess of commissions to be met by assessment of member banks of the association in proportion to ratio which their capital and surplus bears to aggregate capital and surplus of members of the association. | Shareholders of federal reserve banks responsible for engagements of their bank to the extent of their subscription in addition to the amount subscribed. |

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| Liability of stockholders same as under National Banking Act. | Stockholders of national banks held individually responsible for the engagements of their bank, each to the amount of his stock in addition to the amount subscribed for. |
| V. OFFICERS AND DIRECTORS | V. OFFICERS AND DIRECTORS |
| *1. Organization Committee* | *1. Organization Committee* |
| Organization committee to be composed of Secretary of Treasury, Secretary of Agriculture, Secretary of Commerce and Labor, and Comptroller of the Currency. | The act provides for a reserve bank organization committee composed of Secretary of Treasury, Secretary of Agriculture, and Comptroller of the Currency. |
| *2. Directors of N. R. A.* | *2. Federal Reserve Board* |
| Board of N. R. A. to be composed of forty-five directors and constituted in the following manner:<br>(*a*) Six ex-officio members — governor, two deputy governors, Secretary of Treasury, Secretary of Commerce and Labor, and Comptroller of Currency.<br>(*b*) Fifteen directors to be elected, one by directors of each branch of N. R. A.<br>(*c*) Twelve directors elected by voting representatives of the various districts, voting power weighted according to stock representation.<br>(*d*) The twenty-seven thus elected to elect twelve more, representative of the various interests of the country and not officers of banks. (No more than three of classes (*c*) and (*d*) to come from any one district.) | The Federal Reserve Board is composed of the Secretary of the Treasury, the Comptroller of the Currency, ex-officio, and six persons appointed by the President; salaries, $12,000. Only one member from one district. The six appointed members represent the financial, agricultural, industrial, and commercial interests of the country; one is designated by the President as governor and one as vice governor of the board. No member of Congress can sit on the board. |
| Normal term of office to be three years. No member of any national | |

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| or state legislative body to be a director of N. R. A., of a branch, or of a local association. | |
| Governor to be selected by the President of the United States from a list submitted by board of directors and to be subject to removal for cause by a two-thirds vote of directors. Two deputy governors to be elected by the board of directors for terms of seven years. | |
| *3. Committees of N. R. A.* | *3. Federal Advisory Council* |
| The directors of the N. R. A. to elect annually from their number an executive committee composed of nine members, the governor to be ex-officio chairman and the two deputies and the Comptroller of the Currency ex-officio members, and not more than one elected member to be chosen from any one district. All powers of the board not reserved or otherwise delegated to be exercised by an executive committee. | A federal advisory council of one member from each reserve district, elected annually by directors of the reserve banks. Compensated by reserve banks. |
| Board of supervision, to be elected by board of directors from among their number, the Secretary of the Treasury to be ex-officio chairman. | |
| *4. Directors of Branches* | *4. Federal Reserve Banks* |
| Each branch to have a board of directors: | Each federal reserve bank controlled by nine directors: |
| (*a*) Directors of each local association to elect one member. | Three elected through a system of electors by stock-holding banks. |

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| (*b*) A number of directors equal to two thirds of the number of local associations elected by representatives of banks in each local association, the voting power of the representatives to be weighted according to stock representation.<br>(*c*) The directors thus elected to choose additional directors equal in number to one third of the number of local associations, fairly representative of the various interests of the country and not officers of banks.<br>(*d*) Manager of the branch to be ex-officio member and chairman of board. Manager and deputy manager to be appointed by governor of N. R. A. with approval of executive committee.<br>Normal term of office to be three years.<br>Local associations to elect directors annually — three fifths by straight ballot and two fifths by stock representation of member banks. | Three (elected by member banks) representing business interests of the district.<br>Three appointed by the Federal Reserve Board, which is to designate one as chairman of the board of directors and federal reserve agent, and a second as deputy chairman and deputy federal reserve agent. These three must have been residents of the district for two years.<br>The branches of the reserve banks have from three to seven directors, of whom the parent reserve bank appoints a majority of one and the reserve board the remainder. |
| VI. POWERS | VI. POWERS |
| *1. National Reserve Association* | *1. Federal Reserve Board* |
| N. R. A. to receive deposits only from the United States and from subscribing banks. Upon deposits no interest to be paid.<br>All domestic transactions of the N. R. A. to be confined to the government and subscribing banks, | The reserve board has the following powers:<br>To examine reserve banks and member banks.<br>To permit or require reserve banks to rediscount paper of other reserve banks at rates to be fixed by the board. |

with the exception of the purchase and sale of government or state securities of foreign governments or of gold coin or bullion.

N. R. A. to act as fiscal agent of United States, receiving, disbursing, and caring for government funds.

N. R. A. may rediscount, for and with indorsement of any depositor bank, notes and bills of exchange arising out of commercial transactions. Such notes and bills not to have over twenty-eight days to run and to have been drawn at least thirty days prior to date of rediscount. The amount not to exceed capital of applicant bank; the amount bearing the name of any one person, corporation, etc., not to exceed 10 per cent of capital and surplus of said bank.

N. R. A. may rediscount such paper, having more than twenty-eight days to run but not more than four months, if guaranteed by the applicant bank's local association.

Subject to limitations, N. R. A. may discount direct obligations of a depositing bank if indorsed by its local association. In such cases the local association to take from applicant bank securities equal to four thirds of the amount of its indorsement and hold them to the account of N. R. A.

To suspend for stated periods reserve requirements and to levy a tax on deficiency in reserves.

To regulate the issue of notes.

To add to or reclassify existing reserve and central reserve cities.

To suspend or remove officials of reserve banks, giving written notice of the cause.

To require writing off of doubtful assets of reserve banks.

To suspend, liquidate, or reorganize reserve banks violating the act.

To require bonds of federal reserve agents.

To exercise functions of a clearing house for reserve banks or to require any reserve bank to do same for member banks.

To levy upon reserve banks semiannual assessments sufficient to meet expenses of the board.

To exercise general supervision over the reserve banks.

To define the character of bills eligible for discount by reserve banks and to limit and regulate rediscounts and acceptances.

To establish the rate of interest to be charged reserve banks on federal reserve notes issued.

To fix charges to be collected by member banks for checks cleared through reserve banks.

To choose three directors for each reserve bank, designate federal reserve agents, and choose a minority of the directors for each branch of a reserve bank.

N. R. A. to fix and publish uniform rate of discount for the entire United States.

N. R. A. may buy from a subscribing bank acceptances of banks or good financial houses arising out of commercial transactions and having not over ninety days to run.

N. R. A. may invest in United States bonds or in short-term obligations (not over one year to run) of the United States or of any state or of foreign governments.

N. R. A. may buy from its subscribers and sell foreign checks and bills of exchange arising out of commercial transactions, with not over ninety days to run, and bearing the signatures of at least two responsible parties of which the last is that of a subscribing bank.

N. R. A. may also establish branches in foreign countries for the purpose of dealing in two-name bills of exchange arising out of commercial transactions and having not over ninety days to run.

To be the duty of the N. R. A. or any of its branches, upon request, to transfer any part of the deposit balance of a subscribing bank to the credit of any other bank having an account with the

To require reserve banks to open branches in their districts and permit them to establish agencies abroad.

To permit state banks and trust companies to become members.

To add to the list of cities in which banks may not lend on farm lands.

To permit a national bank to act as trustee, executor, etc.

To review and determine the rates of discount established by reserve banks on commercial paper.

To call on reserve banks for additional security against circulation.

To regulate the transfer of reserve bank stock.

N. R. A. If balance is transferred from the books of one branch to those of another, the service to be charged for at a rate to be fixed by executive committee of branch at which transaction originates.

### *2. Local Associations*

The local associations are not comparable to any organization under the Federal Reserve Act.

Local associations may guarantee paper which their members wish to rediscount at the branch of the N. R. A. in their district, charging a commission to be fixed by its board of directors. The guaranty of the association in case of loss to be met by its member banks in proportion to capital stock and surplus of each. Total amount of guaranties not to exceed at any time aggregate capital and surplus of banks forming the guaranteeing association.

Any local association may act as a clearing house for its members and may be required so to act by N. R. A.

### *2. Federal Advisory Council*

Federal advisory council meets in Washington at least four times a year. It has power to confer with the reserve board, to make recommendations, and to call for information.

### *3. Federal Reserve Banks*

A reserve bank may receive deposits from the United States, from its member banks, and, for exchange purposes only, from other reserve banks and from nonmember banks in its district. It may act as the fiscal agent of the United States. It must receive at par from member and from other reserve banks checks and drafts drawn upon any member bank in any district, but member banks may charge expenses for collections and exchange, and reserve banks may make charges for their services. Nothing is said as to the payment of interest on deposits.

Discounts may be made by a reserve bank for member banks as follows:

Paper with indorsement of member bank drawn for agricultural, industrial, or commercial purposes and maturing within ninety days of discount.

Paper drawn for agricultural purposes or based on live stock and having not more than six months to run, the aggregate of this class of paper to be limited by the reserve board to a certain percentage of the capital of the reserve bank.

Acceptances having a maturity at time of discount of not over three months and arising (*a*) out of exportation or importation of goods; (*b*) transactions for the purpose of furnishing dollar exchange; (*c*) transactions involving the domestic shipment of goods, provided such drafts are accompanied at time of acceptance by shipping documents conveying or securing title or by warehouse receipts covering readily marketable staples.

A reserve bank may make advances directly to member banks upon their promissory notes for a period not exceeding fifteen days, provided such notes are secured by paper eligible for rediscount or by bonds or notes of the United States.

Discount rates may be established by the reserve banks, subject to the review and determination of the reserve board. To the rates of discount will be added the rate of any tax imposed upon the reserve bank by reason of any deficiency in the reserves.

In the open market, under rules of reserve board, reserve banks may buy and sell exchange of the maturities eligible for rediscount, deal in gold, and invest in United States bonds and in warrants, etc., of states, cities, etc. (including irrigation and drainage districts), maturing within six months.

Every reserve bank must establish branches in its own district and may do so in the districts of other reserve banks which have suspended; and may establish agencies in foreign countries, which may buy and sell two-name bills of exchange having not more than ninety days to run.

Reserve banks may issue circulating notes against United States bonds under certain conditions (see IX, 2).

### *3. Member Banks*

In addition to rights already conferred by law, member banks to be authorized to accept commercial paper drawn upon them having not more than four months to run — the amount not to exceed one half of the capital and surplus of accepting bank.

The organization of banks in foreign countries and in dependencies of the United States authorized. Stock of such banks may be held by national banks, but the aggregate of such stock held by any one bank not to exceed 20 per cent of its capital. Such a bank may have an office in the United States, but not to receive deposits in the United States nor compete with national banks for domestic business.

National banks may establish separate savings departments and lend not more than 40 per cent of their savings deposits upon real estate up to 50 per cent of the value of the property. (There is no provision for savings departments in the Federal Reserve Act.)

### *4. Member Banks*

Member banks may accept drafts or bills having not more than six months' sight to run and arising out of exportation or importation of goods; or growing out of transactions involving domestic shipment of goods, provided such drafts at time of acceptance are accompanied by shipping documents conveying or securing title or by warehouse receipts covering readily marketable staples. No bank may accept for any one legal person drafts aggregating more than 10 per cent of its paid-up capital and surplus, unless secured by documents attached; no bank shall accept drafts to an amount exceeding one half its paid-up capital and surplus, provided the amount may be extended to equal its paid-up capital and surplus by permission of the Federal Reserve Board; but in no case may acceptances of domestic drafts exceed 50 per cent of its paid-up capital and surplus. Member banks may also accept drafts or bills of exchange, having not over three months' sight to run, drawn by foreign bankers for the purpose of furnishing dollar exchange, the amount not to exceed 50 per cent of the accepting bank's paid-up capital and surplus.

Member banks have exclusive right to rediscount facilities offered by reserve banks.

On improved and unencumbered farm lands situated in same reserve district or within a one-hundred mile radius national banks outside of central reserve cities may make loans at 50 per cent of actual value, not to run for more than five years; the aggregate may equal 25 per cent of capital and surplus or one third of time deposits. National banks with capital of $1,000,000 or more may establish branches in foreign countries or invest up to 10 per cent of their capital and surplus in stock of foreign banking corporations.

National banks may charge customers the actual expense of collections, the rate to be fixed by reserve board.

By permission of reserve board they may act as trustee, executor, administrator, and registrar.

No member bank can act as agent of a nonmember bank in applying for discounts from a federal reserve bank except by permission of reserve board.

Secretary of Treasury may use member banks as depositories.

### VII. Reserves

#### *1. National Reserve Association*

The N. R. A. to maintain 50 per cent reserve in gold or lawful money against all demand liabilities,

### VII. Reserves

#### *1. Federal Reserve Banks*

A federal reserve bank is to maintain a reserve in gold or lawful money of 35 per cent against

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| including deposits and circulating notes. If reserves fall below 50 per cent, N. R. A. to pay special tax at a rate increasingly of 1½ per cent per annum for each 2½ per cent of such deficiency. | deposits, and in gold of 40 per cent against its federal reserve notes outstanding. |
| In computing the demand liabilities of N. R. A. a sum equal to one half of the amount of United States bonds held by it which have been purchased by it from national banks to be deducted. | The 40 per cent gold-reserve requirement may be suspended by the reserve board; a tax of 1 per cent per annum upon any deficiency until the reserve falls to 32½ per cent. When the reserve falls below that point, a tax at the rate increasingly of not less than 1½ per cent per annum to be levied upon each 2½ per cent or fraction thereof of additional deficiency. |
| | Each reserve bank is required to keep on deposit in the Federal Treasury gold sufficient for redemption of its reserve notes, in no event less than 5 per cent; this deposit is counted as part of the 40 per cent reserve required. |
| *2. Member Banks* | *2. Member Banks* |
| Deposits with N. R. A. and notes of N. R. A. may be counted as part of reserve of member banks. | Member banks to carry a 3 per cent reserve against time deposits (those not payable before thirty days). |
| To be no change in percentage of reserve required against demand deposits. | Reserves against demand liabilities — 7 per cent for country banks, 10 per cent for banks in reserve cities, 13 per cent for banks in central reserve cities. All required reserves must be on deposit with the federal reserve bank of the district. |
| Time deposits maturing within thirty days subject to same reserve requirements as demand deposits. | |
| Time deposits having more than thirty days to run to have no reserve | |

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|---|---|
| requirements until within thirty days of maturity, after which to be subject to same reserve requirements as demand deposits.<br>Savings deposits to be subject to notice of thirty days or more and to be covered by a reserve equal to 40 per cent of that required of demand deposits in same locality. | When member banks place reserves with their reserve bank, the reserve bank may accept, to the amount of half the payment, paper eligible for rediscount. Against reserves with a reserve bank, member banks may check, under rules and penalties fixed by the reserve board. When reserves are below requirements, a member bank may not make new loans or pay dividends.<br>The net balance of amounts due to and from other banks is taken as the basis for ascertaining deposits against which reserves are required.<br>Clause permitting national banks to count as a part of their reserves the 5 per cent redemption fund is repealed. |
| VIII. REPORTS AND EXAMINATIONS | VIII. REPORTS AND EXAMINATIONS |
| N. R. A. to report weekly to Comptroller of Currency; report to be published. In addition, full reports to be made to Comptroller coincident with the five reports called for each year from national banks.<br>Duplicates of bank examiners' reports to be filed with N. R. A. for confidential use.<br>All national banks to submit to N. R. A. a statement of condition monthly or on demand. | Federal Reserve Board to publish a weekly statement of condition of all reserve banks, to examine each reserve bank annually or oftener upon an application of ten member banks, and to make annual report to Speaker of House of Representatives.<br>Every reserve bank must report to the reserve board when demanded. Reserve banks may examine member banks with approval of reserve board. |

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| | Examiners appointed by Comptroller of the Currency to examine member banks at least twice yearly. |
| | No bank subject to visitorial powers other than those authorized by law or vested in the courts or exercised by Congress or committees thereof duly authorized. |
| IX. Currency | IX. Currency |
| *1. National Reserve Association Notes* | *1. Federal Reserve Notes* |
| National Reserve Association Notes to be issued, redeemable in lawful money at head office or branch offices of N. R. A. Notes to constitute a first lien upon all assets of N. R. A. and to be receivable in payment of all dues to the United States and from the United States (except such as are specifically payable in gold) and of all debts due to a national bank. | Federal reserve notes, obligations of the United States, to be issued to federal reserve banks at discretion of reserve board, in denominations of $5, $10, $20, $50, and $100, redeemable in gold or lawful money at any reserve bank and in gold at United States Treasury. Notes to be secured by equal amount of gold or paper eligible for rediscount and by first lien on assets of issuing bank, and to be receivable for all taxes, customs, and other public dues. Reserve banks may be permitted to substitute collateral. |
| All notes of the N. R. A. to be covered to extent of at least one third by gold or lawful money, and the remaining portion by bankable commercial paper or obligations of the United States. No notes to be issued while the reserves of lawful money stand below one-third limit. | Notes must be forwarded to issuing bank for credit or redemption when received by other reserve banks. Notes presented for redemption at United States Treasury to be paid and returned to issuing bank. If presented otherwise than for redemption, they may be exchanged for gold and returned |
| Notes of N. R. A. in circulation at any time in excess of $900,000,000 (including national bank notes outstanding), not covered by equal | |

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| amount of lawful money held by N. R. A., to pay special tax of 1½ per cent per annum, and notes in excess of $1,200,000,000 not so covered to pay tax of 5 per cent. | to issuing bank or may be returned for credit of United States.<br>No reserve bank can pay out notes of another bank under penalty of 10 per cent face value of the notes.<br>Reserve board may reject an application for notes from any reserve bank.<br>Reserve bank may retire notes by depositing with the reserve agent federal reserve notes, gold, gold certificates, or lawful money. |
| *2. Bond-Secured Circulation* | *2. Bond-Secured Circulation* |
| To be no additional issue of circulating notes by any national bank. National banks may retain outstanding circulation, but in case any part of it shall be retired, such retirement to be permanent. | National bank notes may be retired as indicated below under head of United States Bonds.<br>Reserve bank may take out, against such bonds as it is required to purchase by the act, an equal amount of circulating notes similar to national bank notes except in that they are obligations of the reserve bank and not limited in amount by the capital of the issuing bank. |
| | *3. Gold Standard Act* |
| | Gold Standard Act of 1900 reaffirmed. In order to obtain gold the Secretary of the Treasury is authorized to use United States bonds or one-year 3 per cent gold notes. |

### *3. United States Bonds*

Upon application of N. R. A., Secretary of Treasury to exchange 2 per cent bonds bearing circulation privilege, purchased from banks by N. R. A., for 3 per cent bonds without circulation privilege, payable after fifty years.

N. R. A. to hold the 3 per cent bonds during its corporate existence, provided that after five years Secretary of Treasury may permit it to sell $50,000,000 of the bonds annually, and provided further that the United States reserve the right to buy them at any time at par.

### *4. United States Bonds*

Banks no longer required to deposit bonds with the Treasurer of the United States upon organization.

At any time after two years and before twenty years national banks which become member banks may file with the United States Treasurer an application to sell United States bonds securing circulation. Every three months the reserve board will pass upon these applications and may require federal reserve banks to purchase such bonds at par and interest, the purchasing reserve bank to deposit the price with the United States Treasurer and the Treasurer to pay the selling bank any surplus over an amount necessary to redeem national-bank notes outstanding against the bonds in question. When redeemed, these notes would be permanently retired.

The board cannot require the reserve banks to buy more than $25,000,000 in any one year.

Two per cent bonds against which no circulation is outstanding may be exchanged by reserve banks for one-year 3 per cent gold notes, renewable for thirty years, to the extent of half the face value of the bonds, and thirty-year 3 per cent gold bonds for the remainder. Upon application of a reserve bank, approved by reserve board, the gold notes may be exchanged for

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| | gold bonds. Neither gold notes nor gold bonds have circulation privilege. |
| X. State Banks | X. State Banks |
| Plan proposed to permit state banks and trust companies to be converted into national banks. | State banks with sufficient capital may be converted into national banks (if conversion does not contravene state law), with the approval of Comptroller of the Currency. |
| Without becoming a national bank any state bank or trust company may become a member of a local association subject to following provisions:<br>(*a*) That, if a bank, it have paid-in capital not less than that required for national banks in same location; and that, if a trust company, it have unimpaired surplus of not less than 20 per cent of its capital and, if located in a city of 25,000 inhabitants or less, it have paid-in capital of not less than $100,000 and in a larger city a proportionately greater capital up to $500,000 in a city of 500,000 inhabitants or more;<br>(*b*) That it be subject to same reserve requirements against demand deposits as those for national banks of its location, except that it may deposit part of its reserves with state banks and trust companies as well as with national banks in reserve and central reserve cities;<br>(*c*) That it maintain against other classes of deposits the percentage of reserves required by the plan; | Without becoming a national bank a state bank may, upon approval of reserve board, become a member bank, provided it has a paid-up capital equal to 60 per cent of that required of national banks where it is located. It must also comply with the reserve and other requirements of such banks. Reserve board may require a state bank or trust company, which has become a member bank but has not complied with requirements, to surrender its stock upon repayment of its subscription. |

(*d*) That it make same reports, submit to same examinations, etc., as other member banks.

### XI. Nonmember Banks

Except under provisions of state law controlling state banks which have become member banks, a member bank cannot have on deposit with a nonmember bank a sum in excess of 10 per cent of its capital and surplus. Except with permission of the reserve board a member bank cannot act as a medium for a nonmember in receiving rediscounts.

National banks in Alaska or outside the continental United States may remain nonmembers, or such banks (except those in Philippine Islands) may, with consent of reserve board, become member banks in any one of the districts.

TREASURY DEPARTMENT
OFFICE OF THE SECRETARY
*Division of Loans and Currency*
**Form 1028.** — Ed. 1,550 — Oct. 27–20

## III. MONTHLY CIRCULATION STATEMENT

### CIRCULATION STATEMENT (December 1, 1920)

| Circulating Medium | I<br>General Stock of Money in the United States | | II<br>Held in the Treasury as Assets of the Government[1] | | III<br>Held by Federal Reserve Banks and Federal Reserve Agents against Issues of Federal Reserve Notes[2] | | IV<br>Money in Circulation | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | December 1, 1920 | December 1, 1919 | December 1, 1920 | December 1, 1919 | December 1, 1920 | December 1, 1919 | December 1, 1920 | December 1, 1919 | November 1, 1920 | January 1, 1879 |
| Gold coin (including bullion in Treasury) | $2,761,338,519 | $2,833,221,135 | $430,386,732 | $386,383,890 | $898,841,309[3] | $818,015,860 | $879,529,142[4] | $979,881,024 | $882,711,539 | $96,262,850 |
| Gold certificates . . | | | | | 201,018,280 | 233,248,280 | 351,563,056 | 415,692,081 | 352,546,218 | 21,189,280 |
| Standard silver dollars | 269,857,494 | 308,145,759 | 15,857,417 | 66,384,518 | | | 97,095,305 | 82,416,283 | 116,370,804 | 5,790,721 |
| Silver certificates . . | | | | | | | 155,289,410 | 157,642,692 | 138,221,861 | 413,360 |
| Subsidiary silver . . | 266,609,065 | 246,540,741 | 3,691,931 | 4,589,321 | | | 262,917,134 | 241,951,420 | 261,556,132 | 67,982,601 |
| Treasury notes of 1890 | | | | | | | 1,615,362 | 1,702,266 | 1,627,867 | |
| United States notes . | 346,681,016 | 346,681,016 | 6,962,414 | 19,192,220 | | | 339,718,602 | 327,488,796 | 338,499,304 | 310,288,511 |
| Federal reserve notes | 3,663,592,795[5] | 3,063,390,865 | 18,203,857 | 39,346,741 | 325,973,820 | 184,229,225 | 3,319,415,118 | 2,839,814,899 | 3,349,459,421 | |
| Federal reserve bank notes . . . . . | 239,569,800 | 263,022,800 | 4,094,172 | 57,552,256 | | | 235,475,628 | 205,470,544 | 234,921,076 | |
| National bank notes . | 734,010,797 | 722,142,160 | 13,130,555 | 44,327,374 | | | 720,880,242 | 677,814,786 | 717,226,599 | 314,339,398 |
| Total . . . . | $8,281,659,486 | $7,783,144,476 | $492,327,078 | $617,776,320 | $1,425,833,409 | $1,235,493,365 | $6,363,498,999 | $5,929,874,791 | $6,393,140,821 | $816,266,721 |
| **Population of continental United States estimated at** . . . . . . . . . . . . . . . . . . . | | | | | | | **107,110,000**[6] | 106,566,000 | 107,491,000 | 48,231,000 |
| **Circulation per capita** . . . . . . . . . . . . . . . . . . . . . . . . | | | | | | | **$59.41** | $55.65 | $59.48 | $16.92 |

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[1] Includes the gold reserve fund held against issues of United States notes and Treasury notes of 1890 ($152,979,025.63 on December 1, 1920), and the gold or lawful money redemption funds held against issues of national bank notes, federal reserve notes, and federal reserve bank notes ($301,162,129.64 on December 1, 1920). Does not include deposits of public money in federal reserve banks, national banks, and special depositories ($183,017,285.20 on December 1, 1920), nor does it include funds held in trust in the Treasury for the redemption of outstanding gold and silver certificates and Treasury notes of 1890. For a full statement of Treasury assets and liabilities see daily statement of the United States Treasury and monthly financial statement.

[2] Includes the gold reserve held by banks against issues and gold or other funds deposited by banks with agents to retire federal reserve notes in circulation and own federal reserve notes held by federal reserve banks.

[3] Includes $822,903,893 credited to federal reserve agents in the gold settlement fund deposited with Treasurer of the United States.

[4] Includes $403,542,320.39 credited to federal reserve banks in the gold settlement fund deposited with Treasurer of the United States.

[5] Includes own federal reserve notes held by federal reserve banks.

[6] Revised figures.

# IV. VALUE OF GOLD COIN AND BULLION IMPORTED INTO AND EXPORTED FROM THE UNITED STATES, 1872–1920

| Year ending June 30 | Exports | Imports | Excess of Exports | Excess of Imports |
|---|---|---|---|---|
| 1872 | 49,548,760 | 8,717,458 | 40,831,302 | |
| 1873 | 44,856,715 | 8,682,447 | 36,174,268 | |
| 1874 | 34,042,420 | 19,503,137 | 14,539,283 | |
| 1875 | 66,980,977 | 13,696,793 | 53,284,184 | |
| 1876 | 31,177,050 | 7,992,769 | 23,184,341 | |
| 1877 | 26,590,374 | 26,246,234 | 344,140 | |
| 1878 | 9,204,455 | 13,330,215 | | 4,125,760 |
| 1879 | 4,587,614 | 5,624,948 | | 1,037,334 |
| 1880 | 3,639,025 | 80,758,396 | | 77,119,371 |
| 1881 | 2,565,132 | 100,031,259 | | 97,466,127 |
| 1882 | 32,587,880 | 34,377,054 | | 1,789,174 |
| 1883 | 11,600,888 | 17,734,149 | | 6,133,261 |
| 1884 | 41,081,957 | 22,831,317 | 18,250,640 | |
| 1885 | 8,477,892 | 26,691,696 | | 18,213,804 |
| 1886 | 42,952,191 | 20,743,349 | 22,208,842 | |
| 1887 | 9,701,187 | 42,910,601 | | 33,209,414 |
| 1888 | 18,376,234 | 43,934,317 | | 25,558,083 |
| 1889 | 59,952,285 | 10,284,858 | 49,667,427 | |
| 1890 | 17,274,491 | 12,943,342 | 4,331,149 | |
| 1891 | 86,362,654 | 18,232,567 | 68,130,078 | |
| 1892 | 50,195,327 | 49,699,454 | 495,873 | |
| 1893 | 108,680,844 | 21,174,381 | 87,506,463 | |
| 1894 | 76,978,061 | 72,449,119 | 4,528,492 | |
| 1895 | 66,468,481 | 36,384,760 | 30,083,721 | |
| 1896 | 112,409,947 | 33,525,065 | 78,884,882 | |
| 1897 | 40,361,580 | 85,014,780 | | 44,653,200 |
| 1898 | 15,406,391 | 120,391,674 | | 104,985,283 |
| 1899 | 37,522,086 | 88,954,603 | | 51,432,517 |
| 1900 | 48,266,759 | 44,573,184 | 3,693,575 | |
| 1901 | 53,185,177 | 66,051,187 | | 12,866,010 |
| 1902 | 48,568,950 | 52,021,254 | | 3,452,304 |
| 1903 | 47,090,595 | 44,982,027 | 2,108,568 | |
| 1904 | 81,459,986 | 99,055,368 | | 17,595,382 |
| 1905 | 92,594,024 | 53,648,961 | 38,945,063 | |
| 1906 | 38,573,591 | 96,221,730 | | 57,648,139 |
| 1907 | 51,399,176 | 114,510,249 | | 63,111,073 |
| 1908 | 72,432,924 | 148,337,321 | | 75,904,397 |
| 1909 | 91,531,818 | 44,003,989 | 47,527,829 | |
| 1910 | 118,563,215 | 43,339,905 | 75,223,310 | |
| 1911 | 22,509,653 | 73,607,013 | | 51,097,360 |
| 1912 | 57,328,348 | 48,936,500 | 8,391,848 | |
| 1913 | 77,762,622 | 69,194,025 | 8,568,597 | |
| 1914 | 112,038,529 | 66,538,659 | 45,499,870 | |
| 1915 | 146,224,148 | 171,568,755 | | 25,344,607 |
| 1916 | 90,249,548 | 494,009,301 | | 403,759,753 |
| 1917 | 291,921,225 | 977,176,026 | | 685,254,801 |
| 1918 | 190,852,224 | 124,413,483 | 66,438,741 | |
| 1919 | 116,575,535 | 62,363,733 | 54,211,802 | |
| 1920 | 466,592,606 | 150,540,200 | 316,052,406 | |

# V. STANDARD INDEX NUMBERS (1905–1920)[1]

(Continued from page 112)

| | U. S. Department of Labor (Base 1890–1899) | Sauerbeck (Base 1867–1877) | "Economist" (Base 1845–1850) |
|---|---|---|---|
| 1905 | 115.9 | 72 | 97 |
| 1906 | 122.5 | 77 | 106 |
| 1907 | 129.5 | 80 | 114 |
| 1908 | 122.8 | 73 | 105 |
| 1909 | 126.5 | 74 | 100 |
| 1910 | 131.6 | 78 | 109 |
| 1911 | 129.2 | 80 | 114 |
| 1912 | 133.6 | 85 | 117 |

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[1] Continued to 1920 on p. 417, the average of prices in 1913 being there taken as 100.

# VI. ESTIMATED MONETARY STOCK OF THE UNITED STATES ON JUNE 30, 1885–1919[1]

(In millions of dollars)

| | Gold Coin and Bullion | Gold Certificates | Silver Dollars[2] | Silver Certificates | Subsidiary Silver | Bank Notes | U. S. Notes | Treasury Notes of 1890 | Total[4] |
|---|---|---|---|---|---|---|---|---|---|
| 1885 | 589 | 140 | 204 | 140 | 75 | 317 | 347 | | 1532 |
| 1886 | 591 | 131 | 234 | 116 | 75 | 309 | 347 | | 1556 |
| 1887 | 655 | 121 | 267 | 146 | 76 | 279 | 347 | | 1624 |
| 1888 | 706 | 142 | 299 | 229 | 76 | 252 | 347 | | 1680 |
| 1889 | 680 | 154 | 334 | 263 | 77 | 211 | 347 | | 1649 |
| 1890 | 696 | 158 | 369 | 302 | 77 | 186 | 347 | | 1675 |
| 1891 | 647 | 152 | 382 | 315 | 78 | 168 | 347 | 50 | 1672 |
| 1892 | 664 | 157 | 388 | 332 | 78 | 173 | 347 | 102 | 1752 |
| 1893 | 592 | 93 | 390 | 331 | 77 | 179 | 347 | 147 | 1732 |
| 1894 | 629 | 66 | 394 | 337 | 76 | 207 | 347 | 153 | 1806 |
| 1895 | 636 | 48 | 401 | 329 | 77 | 212 | 347 | 146 | 1819 |
| 1896 | 600 | 43 | 419 | 343 | 76 | 226 | 347 | 130 | 1798 |
| 1897 | 697 | 39 | 441 | 375 | 76 | 231 | 347 | 115 | 1907 |
| 1898 | 864 | 37 | 458 | 399 | 76 | 228 | 347 | 101 | 2074 |
| 1899 | 975 | 34 | 471 | 406 | 75 | 241 | 347 | 94 | 2203 |
| 1900 | 1036 | 228 | 491 | 416 | 83 | 310 | 347 | 76 | 2343 |
| 1901 | 1125 | 289 | 520 | 435 | 90 | 354 | 347 | 48 | 2484 |
| 1902 | 1193 | 347 | 540 | 454 | 97 | 357 | 347 | 30 | 2564 |
| 1903 | 1249 | 409 | 554 | 465 | 102 | 414 | 347 | 19 | 2685 |
| 1904 | 1328 | 495 | 560 | 470 | 107 | 449 | 347 | 13 | 2804 |
| 1905 | 1358 | 518 | 559 | 465 | 115 | 496 | 347 | 9 | 2884 |
| 1906 | 1476 | 560 | 561 | 477 | 118 | 561 | 347 | 7 | 3070 |
| 1907 | 1466 | 678 | 562 | 476 | 130 | 604 | 347 | 6 | 3115 |
| 1908 | 1618 | 823 | 563 | 474 | 147 | 698 | 347 | 5 | 3378 |
| 1909 | 1642 | 853 | 564 | 484 | 159 | 690 | 347 | 4 | 3406 |
| 1910 | 1636 | 863 | 565 | 489 | 155 | 713 | 347 | 4 | 3420 |
| 1911 | 1753 | 995 | 565 | 463 | 160 | 728 | 347 | 3 | 3556 |
| 1912 | 1818 | 1040 | 565 | 482 | 171 | 745 | 347 | 3 | 3649 |
| 1913 | 1867 | 1087 | 568 | 484 | 175 | 759 | 347 | 3 | 3719 |
| 1914 | 1872 | 1081 | 568 | 491 | 182 | 751 | 347 | 2.4 | 3722 |
| 1915 | 1973 | 1174 | 568 | 493 | 185 | 936[3] | 347 | 2.2 | 4011 |
| 1916 | 2450 | 1579 | 568 | 499 | 188 | 929[3] | 347 | 2.1 | 4484 |
| 1917 | 3019 | 1627 | 568 | 493 | 198 | 1276[3] | 347 | 1.9 | 5410 |
| 1918 | 3065 | 1066 | 499 | 399 | 231 | 2462[3] | 347 | 1.8 | 6606 |
| 1919 | 3112 | 805 | 308 | 192 | 242 | 3445[3] | 347 | 1.7 | 7456 |

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[1] These figures are compiled from the reports of the Secretary of the Treasury and from the Statistical Abstract.

[2] 1890–1919 does not include silver held against Treasury notes.

[3] Includes federal reserve notes. After 1916 also includes federal reserve bank notes.

[4] The totals do not include the gold or silver certificates, as an equal amount of gold or silver is included in the totals under gold coin and bullion and silver dollars.

# VII. WHOLESALE PRICES[1]

## Index numbers of wholesale prices (all commodities)[2]

[1913 = 100]

| | United States; Federal Reserve Board (90 quotations) | United States; Bureau of Labor Statistics (328 quotations) | United Kingdom; Statist (45 commodities) | France; Bulletin de la Statistique Générale (45 commodities) | Italy; Prof. Bachi (40 commodities) | Sweden; Svensk Handelstidning (47 quotations) | Japan; Bank of Japan for Tokyo (56 commodities) | Australia; Commonwealth Bureau Census and Statistics (92 commodities) | Canada; Department of Labor (272 quotations) | Calcutta, India; Department of Statistics (75 commodities) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1913 | 100 | 100 | 100 | 100 | 100 | 100[3] | 100 | | 100 | |
| 1914 | | 100 | 101 | 101 | 95 | 116 | 96 | 100[4] | 101 | 100[5] |
| 1915 | | 101 | 126 | 137 | 133 | 145 | 97 | 141 | 110 | |
| 1916 | | 124 | 159 | 187 | 202 | 185 | 117 | 132 | 135 | |
| 1917 | | 174 | 206 | 262 | 299 | 244 | 149 | 155[6] | 177 | |
| 1918 | | 197 | 226 | 339 | 409 | 339 | 193 | 170 | 206 | |
| 1919 | | 215 | 242 | 357 | 364 | 330 | 235 | 180 | 217 | |
| 1919 | | | | | | | | | | |
| November | 219 | 230 | 271 | 405 | 436 | 308 | 280 | 199 | 227 | |
| December | 226 | 238 | 276 | 423 | 455 | 317 | 288 | 197 | 238 | |
| 1920 | | | | | | | | | | |
| January | 242 | 248 | 288 | 487 | 504 | 319 | 301 | 203 | 248 | 218 |
| February | 242 | 249 | 306 | 522 | 556 | 342 | 313 | 206 | 254 | 209 |
| March | 248 | 253 | 307 | 555 | 619 | 354 | 321 | 209 | 258 | 198 |
| April | 263 | 265 | 313 | 588 | 679 | 354 | 300 | 217 | 261 | 200 |
| May | 264 | 272 | 305 | 550 | 659 | 361 | 271 | 225 | 263 | 210 |
| June | 258 | 269 | 300 | 493 | 615 | 366 | 247 | 233 | 258 | 206 |
| July | 250 | 262 | 299 | 496 | 613 | 363 | 239 | 234 | 256 | 209 |
| August | 234 | 250 | 298 | 501 | 632 | 365 | 235 | 236 | 244 | 209 |
| September | 226 | 242 | 292 | 526 | 660 | 362 | 230 | 230 | 241 | 208 |
| October | 208 | 225 | 282 | 502 | 662 | 346 | 226 | 215 | 234 | 206 |
| November | 190 | 207 | 263 | 460 | 658 | 331 | 221 | 208 | 225 | 194 |

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[1] See *Federal Reserve Bulletin*, January, 1920.

[2] These index numbers are constructed by the various foreign statistical offices according to methods described in the *Federal Reserve Bulletin* for January, 1920. In all cases, except that of the United States, the original basis upon which the index numbers have been computed has been shifted to the 1913 base. The monthly and yearly index numbers are therefore only approximate. The latest figures are received by cable and are subject to correction.

[3] July 1, 1913, to June 30, 1914 = 100.

[4] July, 1914 = 100.

[5] End of July, 1914 = 100.

[6] Last six months of 1917.

## VIII. GOLD AND SILVER IN EUROPEAN CENTRAL BANKS,[1] IN CANADA,[2] AND IN THE TREASURY AND NATIONAL BANKS OF THE UNITED STATES[3]

| COUNTRY | GOLD | SILVER | TOTAL |
|---|---|---|---|
| England | $197,324,452 | | $197,324,452 |
| France | 628,959,640 | $158,532,338 | 787,491,978 |
| Germany | 218,757,553 | 86,330,000 | 305,087,553 |
| Russia | 728,896,800 | 38,479,900 | 767,376,700 |
| Austria-Hungary | 255,585,300 | 61,085,750 | 316,671,050 |
| Spain | 82,605,200 | 147,163,550 | 229,768,750 |
| Italy | 205,252,000 | 17,702,500 | 222,954,500 |
| Netherlands | 58,733,500 | 4,866,490 | 63,599,990 |
| Belgium | 31,984,134 | 15,992,065 | 47,976,199 |
| Sweden | 23,246,050 | | 23,246,050 |
| Switzerland | 31,040,000 | | 31,040,000 |
| Norway | 10,340,200 | | 10,340,200 |
| Total European | $2,472,724,828 | $530,152,593 | $3,002,877,422 |
| Canada | 138,200,000 | 7,700,000 | 145,900,000 |
| United States | 1,351,426,506 | 538,447,544 | 1,889,874,050 |
| Grand total | $3,962,351,334 | $1,076,300,137 | $5,038,651,472 |

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[1] June 6, 1912. Taken from Bendix, *The Aldrich Plan.*

[2] Total stock on January 1, 1912. See *Report of the Comptroller of the Currency for 1912.*

[3] June 30, 1912. See *Report of the Director of the Mint for 1912.* The above information is not available for European central banks or in Canada since 1913.

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